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General Articles

THE PATHOLOGICAL EFFECTS OF POISONS USED FOR RODENTS*

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The object of this meeting is to discuss the destruction of rodents by the use of chemical poisons, and to consider how the present state of affairs might be improved, having humane considerations as the chief object in view. It is my task to review the pharmacological actions of those agents at present in use, paying attention to the manner in which they cause death, the symptoms which they provoke prior to it, and the rate at which it occurs; also to make suggestions regarding the possible introduction of other poisons which have a lethal efficiency similar to or greater than those at present in use, but which do not possess their undesirable features.

That the use of poisons is one of the most effective means of controlling the rodent menace appears to be established. The methods of administration employed fall under two headings: (*a*) fumigation, (*b*) poison baits. The former is the best method for the treatment of burrows and warrens; it can be applied to the destruction of both rabbits and rats. Hydrocyanic acid gas is the most effective agent. The latter method is of greatest service for the destruction of rats infesting buildings, and the following agents are the commonest: arsenic trioxide or potassium arsenite, barium carbonate, phosphorus, red squill, strychnine, salts of thallium.

Attention must be drawn to the recently-published report of the Poisons Board, appointed under the Pharmacy and Poisons Act, 1933, for when the rules which it has formulated become law in May of this year, the use of poisons as vermin killers will be greatly restricted, and before instituting any new work on the subject, the Society will be well advised to have these rules in mind. That the Board considered the subject is evidenced by the statement in the report that although the importance of effective vermin killers is recognised, it is considered undesirable that such a large range of poisonous substances should have wide distribution. The inclusion of barium carbonate in Part II of the Poisons List only, and the entire exclusion of red squill from the list, is considered by the Board to be sufficient to meet the public demands. Claremont (1926), in his excellent handbook on the subject of rat destruction, makes the following provisions for the ideal poison: It must have a high degree of efficiency, small doses must certainly kill. It must be relatively harmless to domestic animals. It must be cheap and easily procurable. It should have no repellent taste or smell. It must be reasonably easy to handle and readily compounded with suitable ingredients to form attractive baits; and, lastly, it should keep well and retain its toxicity. There would appear to be little doubt that barium carbonate and red squill answer these requirements more exactly than any of the other poisons used. To these postulates might be added, that its action shall be rapid and that it shall not provoke distressing and painful symptoms.

ARSENIC.—The poison popularly referred to as arsenic is chemically arsenic trioxide, the anhydride of the tri-valent arsenious acid, and its salts the arsenites. The metal itself is comparatively non-toxic. Arsenic trioxide is sparingly and slowly soluble in water, the rate at which it passes into solution depending upon the fineness of its state of subdivision. Taken in coarse lumps, its toxicity is greatly reduced, considerable quantities passing through the alimentary canal unchanged. It has no odour and comparatively little taste, with the result that it is eaten readily. The agent is a protoplasmic poison having a predilection for the cells lining the stomach and bowel, the liver, kidneys and heart muscle. The central nervous system is relatively unaffected. After a large dose death generally results from shock and collapse consequent upon tissue destruction in the alimentary canal. An animal may, however, survive this initial period subsequently to die from exhaustion and metabolic disturbances.

The onset of symptoms is delayed for half-an-hour or more after ingestion. In animals they commence with severe abdominal pain and colic. In those species capable of the act, vomiting occurs. A little later profuse diarrhoea commences and continues, with straining, and

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possibly the ejection of blood and mucus. These symptoms are accompanied by marked shock and prostration. In the course of twelve hours or so collapse sets in, the animal sinks to the ground, pulse and respirations become feeble and weak, to be followed by coma, possibly convulsions, and death. As has been pointed out, the animal may survive these initial symptoms to die in the course of the next few days, consequent upon metabolic changes due to degeneration of the liver and kidneys, and exhaustion.

Barium Carbonate.—Occurs as a soft, white powder. It is insoluble in water, and as such is probably non-toxic. It is readily converted, in the presence of dilute hydrochloric acid, into the soluble and highly-toxic barium chloride. Its toxicity depends upon the presence of hydrochloric acid in the stomach, and it will be more effective when taken by a hungry animal at the commencement of feeding, than if taken later on an already full stomach.

Its action may be divided into two phases, the first on the stomach, and the second, on the central nervous system and unstriped muscle tissue, after absorption. In the stomach it acts as a local irritant, and in some species profuse vomiting will occur quickly after ingestion. The rat is not very prone to vomiting. After absorption it has a powerful stimulating action on the muscle fibres of the bowel and bladder, causing profuse purgation and micturition. The heart muscle is similarly stimulated at first, but later it becomes markedly depressed. The medulla and spinal cord are at first stimulated and there may be convulsions. Depression and paralysis follow.

Death is due to depression of the medulla causing respiratory failure, but contributory factors are marked circulatory depression due to the toxic action on the heart, and shock associated with superpurgation. It generally occurs within two to eight hours of ingestion, during the greater part of which the animal is conscious.

Phosphorus.—By this is meant yellow phosphorus. Being insoluble in water it is absorbed with difficulty and comparatively large quantities can be taken without ill-effect. Absorption is facilitated when it is in a finely-divided state. It is readily soluble in fats and oils and when given in such a medium is highly toxic. For this reason it is generally mixed with some fatty substance such as dripping when used as a vermin bait. As was the case with arsenic, there is no immediate irritant effect in the stomach and symptoms are delayed for an hour or more. They commence with some abdominal pain and colic, vomiting in animals capable of doing so, and possibly purgation. These symptoms subside in the course of six to twelve hours, and there is apparent recovery. After a period of two or three days symptoms recur. Vomiting recommences, there is malaise, dullness and inappetence, some abdominal pain. The tissues become jaundiced, and haemorrhages into the mucous membranes occur. A period of several days' illness may be followed by recovery. If the dose has been a lethal one, these symptoms will be followed by collapse, often associated with convulsions, finally coma and death.

The action of phosphorus is to produce extensive fatty degeneration of certain of the tissue cells, particularly those of the liver, kidneys, heart muscle, the walls of the blood vessels, the stomach and intestines.

Death is due to changes in metabolism consequent upon degeneration of the liver and kidneys, accentuated by circulatory disturbances. The central nervous system remains unaffected until final collapse occurs. The action of this agent is similar to that of arsenic, except that it is slower.

Red Squill.—Red squill is the dried bulb of the red variety of *Urginia scilla* (or *maritima*), a plant of the lily family, obtained from Mediterranean countries. The squill preparations of the British Pharmacopoeia are made from the bulb of the white variety. Considerable confusion has occurred over red squill poisoning in rats owing to the assumption that the toxic agents were the cardiac glucosides used in medicine. Claremont (1922) and Winton (1927) have done much to clear up the chemistry and pharmacology of red squill. It would appear that the rat-poisoning principle is quite distinct from the glucosides, and that it is present in the red variety only; in fact, the white bulb is practically non-toxic to rats. The active principle is unstable and care must be taken in drying the bulb and preparing the bait, otherwise it may become innocuous. It is used either as the dried bulb or as an extract.

The essential action is upon the central nervous system, there being little or no effect upon the alimentary canal or circulation. Symptoms are delayed for several hours after ingestion, and commence as a paralysis of the hind limbs, which progressively becomes more generalised, together with convulsions of varying intensity, during which the animal may throw itself about. Death occurs from asphyxia following paralysis of the respiratory centre. Large doses may kill in the course of 24 hours, death in some cases may be delayed two or three days. A striking feature is that females appear to be twice as susceptible as males.

It is often stated that red squill is non-toxic to domestic animals. It is improbable that this is the case, although I must admit that I know of no positive case of poisoning in the dog and cat.

Strychnine. — Strychnine is a powerful alkaloidal poison. In the alimentary canal it has no local action other than its intensely bitter taste, although it is readily taken by dogs. It is rapidly absorbed and symptoms commence in from 15 to 30 minutes after ingestion. Its chief action is upon the spinal cord; the brain is relatively unaffected. Under its influence the reflex irritability and the conductivity of the cord become greatly increased, with the result that the simplest of stimuli will provoke a grossly exaggerated motor response. This is characterised by the sudden onset of a tetanic convulsion. The animal falls on to its side, the whole body becoming rigid, the limbs and spine stiffly extended and the head thrown back. When a very large dose has been taken a single convulsion may cause death. Its intensity is such that the respiratory muscles become tetanised and progressive asphyxia occurs. In such a case the period elapsing between the onset of the convulsion and loss of consciousness will be between one and two minutes. Should the animal survive the convulsion this will be followed by a period of complete relaxation with marked exhaustion. Very soon another convulsion will occur. Eventually one will prove fatal. The rodents are much less susceptible to the action of strychnine than are the carnivora. Again the oral method is a bad one for the administration of strychnine as a poison, for it has to traverse the liver before reaching the nervous system and much of it will be held up in this organ. Administered by injection it is one of the most rapidly fatal poisons.

The Cyanides.—It is appropriate that the action of hydrocyanic acid and its salts should be discussed at this meeting, for a method of destroying rabbits by pumping calcium cyanide dust into burrows has been recommended by this Society. The method has been extensively employed in Australia. In a monograph recently published the practical and economic efficiency of the method is demonstrated, although no description of the course of poisoning is given.

On exposure to moist air finely-powdered calcium cyanide decomposes, liberating free hydrocyanic acid gas. The acid is a powerful protoplasmic poison, having a toxic action on all cells, whilst in mammals it is those of the central nervous system which are most affected. The brain, medulla and spinal cord are at first powerfully stimulated and then depressed and paralysed. In addition, under its influence, cells are unable to absorb oxygen from the red blood cells, so that asphyxia plays a prominent part.

By whatever method the agent is given absorption and the onset of symptoms are extremely rapid—by inspiration in from five to eight seconds. The following remarks are based on observation in the dog following large toxic doses. The first change observed is that respirations become accelerated and deepened; the animal shows distress and may struggle. This culminates in a tetanic convulsion. At the onset of the convulsion the animal may cry loudly. Respirations cease, due to tetany of the respiratory muscles, although the corneal reflex is not immediately lost. The convulsion is followed by a series of tremors, after which relaxation sets in. At this stage a few deep gasps may occur before respiratory failure is complete. The heart ceases from anoxaemia. The period elapsing between the onset of symptoms and the loss of consciousness is from 30 to 40 seconds. If a smaller quantity has been given it may be delayed several minutes.

Hydrocyanic acid is probably the most rapidly fatal poison known. From the humanitarian standpoint its one disadvantage is that it has a primary stimulating action on the central nervous system and that consciousness is not lost until the convulsion supervenes.

Of the use of thallium salts I have no experience. It is a minor metal and its action resembles that of arsenic. It is not a rapidly-acting poison.

Reviewing the actions of these poisons, it will be seen that the majority of them have a direct toxic action on the protoplasm of cells. Hydrocyanic acid, by its paralytic action on the central nervous system, kills very quickly—a matter of a few minutes at the outside. Arsenic and phosphorus have a predilection for the bowel wall, the liver and the kidneys. With the former shock plays a great part, whilst with the latter metabolic changes are the cause of death. Both are slow, phosphorus especially so. Barium carbonate affects the central nervous system, the heart and the bowel. It is more rapid than the arsenic, phosphorus group, but much slower than HCN. Red squill is a slow-acting nervous poison. With the exception of HCN none of them causes early loss of consciousness. The action of strychnine is rather remarkable, in that it is the symptoms which it provokes, rather than a direct toxic action, which are responsible for death. Death occurs from asphyxia due to spasm of the respiratory muscles and glottis during a convulsion. If prompt steps are taken to prevent convulsions occurring an animal may withstand many times the normal toxic dose. Its great disadvantage is that when given by the mouth to rodents it is improbable that a single convulsion will prove fatal.

At this point I will make a brief reference to agents which might possibly be introduced. From the humane standpoint the best poisons are those which have a depressant action upon the brain without any preliminary stimulation. It is the group the members of which in medicine are classed as narcotics. Their action is to provoke a progressively deepening narcosis

which eventually becomes complete loss of consciousness. When toxic doses are given death occurs from paralysis of the vital centres. When one attempts to apply these agents for use in vermin baits, the subject is found to be teeming with difficulties. Most of them are costly and economic considerations will preclude their use. With many the quantity necessary would be large and it would be difficult to ensure that the animal received sufficient. Again many of them have a nauseating taste and they would be refused. An even more important point is that the action of most of the non-volatile narcotics is most irregular when they are given by the mouth. This is due to the fact that considerable quantities may be broken down in the liver before reaching the nervous system; in fact, Scarborough (1936) has recently shown that, using nembutal (probably the most potent narcotic we possess at present) by the mouth in rats, it is very difficult to induce narcosis.

Of the agents used the most toxic are those containing halogen radicles and chloral hydrate is the first to suggest itself. It has, however, a particularly nauseating taste. Others are chlorbutol and tribromethyl alcohol (avertin). Of the barbiturate group I think that phenobarbitone would be the most suitable.

It would appear to me that a line of research in which the Society might interest itself, is the combination of certain of the vermin poisons in use with narcotics. The toxic action of the former on the liver would increase the narcotic action of the latter. The combined action would possibly be a cumulative one, the aim being that narcosis supervenes whilst the more potent poison is having its destructive action.

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New regulations in connection with the licensing of bulls are being issued by the Department of Agriculture for Scotland, and will come into operation on July 1st, next. Rules are laid down for the manner of and time for making application for a licence or permit; conditions as to inspection and marking of bulls; form of licence or permit; change of place at which permit bulls may be kept; application for referee's inspection, fees, etc.

THE USE OF NITRIC ACID IN THE SEROLOGICAL DIAGNOSIS OF CATTLE TRYPANOSOMIASIS

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Following the recent work of Bennett (1933) on the mercuric chloride test in camel trypanosomiasis, and that of Greig, Van Rooyen and Hendry (1934), Wiseman (1934) and Chorine, Prudhomme and Koechlin (1934) on Henry's Melanin reaction and the associated phenomenon of "surfloculance" in malaria, tests were carried out with the object of determining whether, firstly, any of these tests could be applied to trypanosomiasis in cattle—more particularly in infections with *T. congolense*, and secondly, whether any other test of a more specific nature could be devised.

No tests with melanin extract were carried out, in view of Wiseman's (1934) results with distilled water alone (*i.e.*, "surfloculance"), but a considerable number of tests were performed with D.O.P.A. (dioxyphenylalanine) with which an analogous reaction had been obtained by Greig, Van Rooyen and Hendry (1934).

Eight hundred and fifty-seven tests have been carried out, employing some 20 different chemical agents, all based on the theory of precipitation of serum euglobulin excess in trypanosomiasis, either by distilled water alone or by solutions of various chemicals. In this connection it is worthy of recall that an increase in euglobulin in trypanosomiasis, corresponding with a strong precipitation reaction, has been verified by Bennett (1929) and Trensz and Jordan (1933).

Of the above tests, 478 were in the nature of preliminary investigations with various substances, all of which, with the exception of nitric acid, proved non-specific. Thereafter only two tests were employed, using D.O.P.A. and nitric acid, and finally nitric acid alone.

Table I (*see opposite page*) shows the distribution of the tests carried out.

The remark "non-specific" as used in Table I, denotes that a proportion of positive reactions were obtained with sera from animals which, although they could not be considered absolute controls (and in this respect only laboratory-born and bred calves were used as controls), were nevertheless free from any signs or history of trypanosome infection.

The majority of the tests were performed with the technique used by Bennett and Kenny (1928), *i.e.*, 1 drop of clear serum was added to 1 c.c. of the reagent; subsequently, however,

TABLE I.

Distribution of Serological Tests in Cattle Trypanosomiasis.

No.	Chemical Agent.	Formula.	Ratio of Serum to Reagent and concentrations employed.	No. of Tests.	Remarks.
1	Dioxyphenylalanine	$C_9H_{11}O_4N$	Dilutions using vols. (0·4 c.c.) 1/4 to 1/32 with 0·5 per cent. aq. sol.	176	Non-specific
2	,,	,,	1 drop/1 c.c. ; 0·2 per cent. and 0·5 per cent.	16	,,
3	Distilled Water ("Surflocculance")	H_2O	Dilutions using vols. (0·4 c.c.) 1/2 to 1/32	82	,,
4	Sodium Chloride	NaCl	Dilutions using vols. (0·4 c.c.) 1/2 to 1/32 ; 1—750 sol.	12	,,
5	Mercuric Chloride	$HgCl_2$	1 drop/1 c.c. ; 1/10,000—50,000	62	,,
6	Bismuth Subnitrate (in Nitric Acid)	$Bi(OH)_2NO_3$	1 drop/1 c.c. ; Bi : 1/5,000—100,000 ; containing from 0·9 per cent. to 13 per cent. NHO_3	84	Results included in Table II
7	Nitric Acid	HNO_3	1 drop/1 c.c. ; N/1 to N/7, *i.e.*, 6·3 per cent. to 0·9 per cent. w/v.HNO_3	259	Results included in Tables II-III
8	Uranium Acetate	$C_4H_6O_6U$	1 drop/1 c.c. ; 1/5,000—10,000	12	Nil reaction
9	Barium Chloride	$BaCl_22H_2O$	,, ,, ,,	12	,,
10	Sodium Sulphate	Na_2SO_4	,, ,, ,,	4	,,
11	Ammonium Sulphate	$(NH_4)_2SO_4$	,, ,, ,,	4	,,
12	Ethyl Alcohol	C_2H_5OH	1 drop/1 c.c. ; 100 per cent. to 15 per cent. ,,	35	Non-specific
13	Platinic Chloride	$PtCl_45H_2O$	1 drop/1 c.c. ; 1/5,000—25,000	25	,,
14	Cobalt Nitrate	$Co(NO_3)_26H_2O$	,, ,, ,,	12	,,
15	Arsenious Oxide (in alkaline sol.)	As_2O_3	1 drop/1 c.c. ; 1/5,000—20,000	4	Nil reaction
16	Ferric Chloride	$FeCl_3$	1 drop/1 c.c. ; 1/10,000—50,000	6	Non specific
17	Pot. acid Phthalate	$KC_8H_5O_4$	1 drop/1 c.c. ; N/5 to N/50	4	,,
18	Buffer Sol. (pH = 4·0)	$KC_8H_5O_4$ and NaOH	1 drop/1 c.c. ; undiluted and 1/10	4	,,
19	Hydrochloric Acid	HCl	1 drop/1 c.c. ; N/3 to N/100,000	4	Nil reaction
				6	Non specific
20	Sulphuric Acid	H_2SO_4	,, ,, ,,	4	Nil reaction
				6	Non-specific
	pH Estimations of Serum (colorimetric, dil. 1/10)			24	Non-specific
			Total Tests	857	

tests were carried out with nitric acid to determine the optimum ratio of serum to reagent, and it was found that this technique was the best. The drops were delivered with a Dreyer's pipette in all cases, making an equivalent dilution of 1 : 25.

The results obtained with bismuth subnitrate solutions in nitric acid were, to all intents and purposes, identical with those obtained with nitric acid or similar concentration alone. Volumetric determinations were made to control the exact per cent. w/v. HNO_3 present in the reagents used. The reactions obtained with bismuth subnitrate in the 84 tests tabulated will, therefore, be considered in conjunction with the 259 tests employing nitric acid alone.

In all the tests a series of various dilutions or concentrations of the reagent were tried out in the hope of finding an optimum concentration which might prove conclusively specific. The time factor, for reading the reactions, has also been studied, and it is in consequence of this that the 343 tests employing nitric acid have been divided into two tables for comparison of the results obtained (*a*) in those tests where the readings were not accurately timed, and (*b*) in those tests where the readings were carefully timed from the addition of the serum to the reagent to the moment of reading the result. These results are set forth in Tables II and III (*overleaf*).

These results were considered sufficiently promising to warrant further investigation, and accordingly over 200 further tests were carried out using the same concentrations of nitric acid, as these were the only ones found in any way specific, *i.e.*, stronger solutions gave identical precipitates with all sera, and weaker solutions failed to give any precipitate with any sera.

During the time these 249 tests were being carried out it was thought that possibly readings taken immediately the serum was added to the acid might eliminate the number of doubtful reactions obtained. Unfortunately this was not done for the whole series, but the results obtained in 130 tests where this was done are worth recording (especially in view of Bennett's experience with the mercuric chloride test) and are set out in Table IV (*page* 605).

TABLE II.

96 Preliminary Tests with Nitric Acid (including Bismuth Subnitrate solutions in equivalent w/v. per cents. of HNO_3)—Readings not Timed, Approximately 1 Hour.

Total Tests.	Classification.	Positive reaction corresponding to ++/+/± for (1·8 per cent. w/v ; 1·5 per cent. w/v ; and 1·3 per cent. w/v. HNO_3).	Doubtful reaction corresponding to +/±/− for	Negative reaction corresponding to (+)±/?/− for
41	Known healthy Calves	Nil	4	37
15	(?) Healthy Adult Bovines	Nil	Nil	15
	Known cases infected with Trypanosomes :—			
8	*T. rhodesiense*	6	2	Nil
12	*T. brucei*	6	6	Nil
8	*T. rhodesiense* and *T. brucei*	5	3	Nil
12	*T. congolense*	1	7	4
40	Total Trypanosome cases	18	18	4
96	Total tests	18	22	56

From the tables the following conclusions may be drawn :—

(i) Nitric acid is definitely specific for trypanosome infections, although in only 45 per cent. of cases, when the following "Positive" reaction is obtained with concentrations of 1·8 per cent., 1·5 per cent. and 1·3 per cent. w/v. HNO_3 :—

++/+/± at the end of one hour.

(A reaction of +/±/− at the end of one hour may be regarded as doubtful.)

(ii) Nitric acid is definitely specific for trypanosome infections, although in only 51 per cent. of cases, when the following "Positive" reaction is obtained with a concentration of 1·8 per cent. w/v. HNO_3 :—

++ or + reading *immediately* the serum is added to the acid.

A comparison of the results given in Tables III and IV shows :—

(++) + reaction *immediately* (1·8 per cent.) = ++/+/± reactions in 1·8 per cent.; 1·5 per cent. and 1·3 per cent. HNO_3 at the end of *one hour*;

and ± reaction *immediately* (1·8 per cent.) = +/±/− reactions in 1·8 per cent.; 1·5 per cent. and 1·3 per cent. HNO_3 at the end of *one hour*.

TABLE III.

Final Tests with Nitric Acid—249 Tests with 1 Hour Readings, Accurately Timed. (Includes 2 tests performed in duplicate.)

Total Tests.	Classification.	Positive reaction corresponding to ++/+/± for (1·8 per cent. w/v ; 1·5 per cent. w/v ; and 1·3 per cent. w/v HNO_3).	Doubtful reaction corresponding to +/±/− for	Negative reaction corresponding to (+)±/?/− for
35	Known healthy Calves	Nil	2 (6 per cent.)	33 (94 per cent.)
	Known cases infected with Trypanosomes :—			
9	*T. rhodesiense*	7	Nil	2
12	*T. brucei*	9	1	2 T.
9	*T. rhodiense* and *T. brucei*	8	Nil	1
18	*T. congolense*	2	3	13
12	*T. vivax*	2	7	3
1	*T. brucei* and *T. congolense*	—	1	—
1	*T. gambiense*	—	1	—
62	Total Trypanosome cases	28 (45 per cent.)	13 (21 per cent.)	21 (34 per cent.)
152	Unknown cattle from mixed tsetse and tsetse - free areas	2*	53	97
249	Total tests	30	68	151

* = No trypanosomes could be detected in fresh or stained blood examinations.

Summary of Trypanosome cases (1 hour reading) :—
Of 30 Congolense and Vivax cases :—4 Positive ; 26 Doubtful or Negative.
Of 32 other Trypanosome cases :—24 (75 per cent.) Positive ; 8 Doubtful or Negative.
T. = Cases which had been treated.

It will be observed that the majority of *T. congolense* or *T. vivax* cases gave only doubtful or negative reactions, although two clear-cut positive reactions were obtained with infections of each of these species, all of which were in the active stage, *i.e.*, trypanosomes were present in the blood.

In all the remaining infections the cases were in a "latent" state, *i.e.*, no trypanosomes were demonstrable in the blood, although sub-inoculation into rats reproduced the disease. Two of the *T. rhodesiense* cases together with the *T. gambiense* case were in monkeys, blood from which was kindly supplied by the Human Trypanosomiasis Institute, Entebbe.

TABLE IV.

130 Nitric Acid Tests in which Readings were taken immediately the Serum was mixed with the Reagent.

Total Tests.	Classification.	Positive reaction corresponding to (++), + for 1·8 per cent. HNO_3	Negative (including Doubtful) reaction corresponding to (±), (?) or (–) for 1·8 per cent. HNO_3.
23	Known healthy Calves	Nil	23
	Known cases infected with Trypanosomes :—		
7	*T. rhodesiense*	5	2
8	*T. brucei*	6	2
5	*T. rhodesiense* and *T. brucei*	4	1
16	*T. congolense*	4	12
1	*T. vivax*	—	1
1	*T. brucei* and *T. congolense*	1	—
1	*T. gambiense*	—	1
39	Total Trypanosome cases	20 (51 per cent.)	19 (49 per cent.)
68	Unknown cattle	Nil	68
130	Total tests	20	110

Summary of Trypanosome cases (Reading immediately) :—

Of 17 Congolense and Vivax cases :—4 positive ; 13 Doubtful or Negative.

Of 22 other Trypanosome cases :—16 (73 per cent.) Positive ; 6 Doubtful or Negative.

The application of nitric acid as a serological test is essentially a modification of the well-known xanthroproteic reaction for protein, as shown by the fact that all the precipitates turned yellow on standing over night, while the addition of ammonia caused the yellow colour to change to orange. Its partial specificity for trypanosome infections is thus probably due to the action of the acid on excess euglobulin present in the serum of these cases. The precipitate, differs, therefore, from that produced in the mercuric chloride test, Henry's reaction, etc., in being in the form of metaprotein instead of euglobulin itself, as generally accepted for these latter tests.

The fact that the reaction is seldom given in the early stages of infection, when trypanosomes are present in the blood, and chiefly occurs in chronic or "latent" infections as previously mentioned, bears out the results obtained by Trensz (1935) in malaria with a modification of Henry's reaction, where he found the test inconclusive during the febrile stage of the disease where blood examination alone suffices, but conclusive afterwards in the chronic stage when parasites could not be detected in the blood. Further tests would have to be carried out, however, to determine (*a*) the period of infection before the test becomes positive, and (*b*) the specificity, if any, of the test in relation to other diseases.

The possibility of the test proving more specific for *T. congolense* is also worth further investigation as the majority of the laboratory cases of this infection were also in the "latent" stage.

It was found that the addition of 0·025 per cent. phenol to the serum as a preservative in no way altered the reaction, which could still be obtained seven to eight days after the serum had been collected.

The phenomenon of "surfloculance," although by no means specific for trypanosome infections, nevertheless usually accompanies a strong nitric acid reaction to the extent of a white precipitate occurring in the 1 : 8 or 1 : 16 dilutions, as may also be noted in Bennett's results where the "water test" is recorded as occurring to the extent of "±" using 1 drop of serum to 1 c.c. of water (*i.e.*, a dilution of 1 : 25).

In conclusion, I would like to record my sincere thanks to my Chief, Mr. R. W. M. Mettam, M.Sc., M.R.C.V.S., for his permission to carry out this work and for his invaluable help in confirming all the trypanosome infections; and the Director of Veterinary Services, Uganda, for permission to publish this paper.

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The Executive Council of the Imperial Agricultural Bureaux has re-elected Sir Charles J. Howell Thomas, representative of the United Kingdom, as Chairman, and Mr. Nevill L. Wright, representative of New Zealand, as Vice-Chairman for the ensuing six months.

THE CURE AND PREVENTION OF JOHNE'S DISEASE: THE EXPERIENCES OF A VETERINARY PRACTITIONER

ARNOLD SPICER, F.R.C.V.S.,
New Oxted

It would seem that the problem of curing Johne's disease stands very much where it did, *i.e.*, that no cure has been found.

It was suggested to me that calcium phosphate might be a cure and at that time I thought there might be something in it, because in February of 1935 I was shown a really bad case of Johne's disease, and as the owner was anxious to try to save the animal, I recommended 6 oz. of Churn Brand complete mineral mixture once a day as a drench. The cow steadily improved and got into as good condition as the other cows. She calved in August and milked well, everything being in order up to December, when she suddenly started scouring again and was destroyed.

Six ounces of Churn Brand mineral must contain a considerable quantity of calcium phosphate, and this cow was fed on it for the whole ten months, so that unless there is some particular virtue in calcium phosphate *per se* one must conclude that it has to be numbered amongst the long list of failures.

The prevention of Johne's disease is another matter, and evidence continues to accumulate showing that this is a simple procedure. In my own district Johne's disease is practically non-existent in those herds in which minerals are fed regularly, so that it is not possible to obtain any further proof, and for that reason I am particularly grateful to Mr. Cabot for drawing my attention to an experiment that has been carried out on a very large scale. It was as follows:—

It was well known to anyone who was interested in the disease about the year 1905 that the island of Jersey had more cases than any other area, and Mr. le Sueur thought that cattle-breeding was finished on the island. I cannot do better than quote his letter to show what has happened: "Yes, with respect to Johne's disease amongst our cattle on the island, I remember whilst practising about 30 years ago the disease was most rampant and I was getting quite concerned as to the ultimate end. However, since the advent of an agricultural expert, who immediately found out that our land was most deficient in lime and advocated the liming and basic slagging of land, with the result that cases of Johne's disease gradually diminished, it is to-day practically non-existent. I also wish to say that at that time swedes, turnips and mangolds were most difficult to grow on account of 'finger and toe,' but likewise, since the liming of the land, these crops have been grown in a healthy condition.

"There is no doubt if low-lying lands, where rank pastures grow, were drained and slagged, the disease would be prevented and eradicated. I have in my mind the case of a farm with low-lying lands, where at one time cattle became affected with Johne's, but since the application of slag to the land and draining, the disease has gradually diminished and is now non-existent.

"From my experience, which extends over 40 years, I am fully convinced that Johne's disease is preventable, by giving the minerals which are deficient in the food to animals, so as to prevent the anaemic condition which induces Johne's disease to develop."

In confirmation of this, I should like to quote a letter from Mr. Blampied: "I have no doubt that Mr. le Sueur's contention that liming our soil has tended practically to eradicate Johne's disease from the island is correct. I well remember that 30 years ago Johne's was very prevalent, whereas to-day it is rarely met with. About 30 years ago, our States Agricultural Department started employing agricultural experts to advise the farmer. They proved to the farmer beyond doubt that our soil was deficient in lime, and advised liming. This procedure, coupled with the fact that there is no permanent pasture on the island, has no doubt had the effect that every field has been cultivated and limed several times during these years, as pasture is not usually allowed to remain for more than three years, but is merely used as rotation.

"Mr. le Sueur has been in practice on the island for over 40 years; he has followed the falling off in Johne's very keenly and has held the opinion he has expressed to you, for a considerable time. I was very interested when I read your article in *The Veterinary Record*—possibly all the more because it coincided with Mr. le Sueur's views."

This experiment is very valuable because of the large number of cattle involved (10,000) and the large area it covers. Very interesting information could be obtained from a series of careful *post-mortem* examinations made on cattle slaughtered on the island. It could be shown whether the bacilli had disappeared altogether or whether the cattle were still infected but did not develop the disease as long as there was no deficiency of mineral in the system and, further, if all these cattle were tested with johnin before slaughter we should obtain accurate knowledge as to the efficiency of johnin, provided the germs have not disappeared.

Johne's disease is such a source of loss to the farmers that it would pay the Government to carry out these experiments.

Another interesting point for consideration is whether Johne's is purely a calcium deficiency disease or if it is a general deficiency disease. As far as I can see, it is purely a calcium deficiency disease, because on one farm I knew, where the losses were very heavy, large quantities of slag have been used and the losses did not diminish, but on the island, where lime was used as well, the disease died out.

Further evidence on this point is obtained from those herds which are fed nothing but dairy nuts and hay and in which the disease dies out.

One brand of nuts, and one which is used in large quantities, used to contain bone-meal and powdered chalk, but the analysis showed that the other ingredients contained ample phosphates, so the bone-meal was left out. One is thus left with the original cake *plus* calcium, and this is sufficient to prevent the disease.

A useful experiment (and one which might save the farmer a good deal of money if successful) would be to feed the cows in a herd in which Johne's disease is prevalent on 1½ lb. of powdered chalk to every hundredweight of food and note the result. It should not be difficult to get this experiment carried out and the difference between the cost of powdered chalk and a complete mineral mixture is considerable.

On several occasions I have heard it said that where minerals are fed regularly milk fever disappears; but the incidence of milk fever, in my experience, always falls to a very low level during dry summers, and the last three summers have been very dry. We shall have to wait for a wet summer before that question can be settled.

In a further communication Mr. Blampied says: "It may be of interest to add that I have this year assisted Mr. le Sueur in testing 200 head of cattle purchased for U.S.A. with Major Dunkin's johnin and that only two reacted. This result we consider very satisfactory, as these animals were selected from at least 170 different herds."

REDWORM IN HORSES

At the annual meeting of the Thoroughbred Breeders' Association the question of redworm in horses was discussed and referred to the council to take action. As a result of correspondence with the Racecourse Betting Control Board, who undertook to be responsible for some of the expenditure in connection with the investigation, a joint committee was appointed. This committee met later at the London School of Hygiene and Tropical Medicine, and Professor R. T. Leiper, who is undertaking the work of investigation, gave a brief account of his proposals. The problem of the control and prevention of redworm in horses, he said, was an exceedingly complex one, and its full investigation would probably extend over a considerable period. Professor Leiper was authorised to continue the investigation on behalf of the committee.

Abstracts

[Results of Inoculating Laboratory Animals with Equine Brain-tissue Suspensions and Equine Brain-tissue Filtrates from Spontaneous Cases of so-called Cornstalk Disease. Graham, R. (1935.) *J. Amer. Vet. Med. Ass.* **86**. 778.]

During the late autumn and winter of 1934-35 an acute and fatal disease appeared among horses in central Illinois. The symptoms suggested involvement of the brain and cord, but although the brains of "more than 50 horses," which had succumbed to the disease or were destroyed when moribund, were examined, no mention is made of the histological findings. On a few farms all the horses died, but more often only one or two animals developed symptoms, the rest of the horses on the premises remaining apparently healthy (the percentage of horses affected is not given). It has been estimated that more than 5,000 horses succumbed to the disease. It is stated that prompt eliminative and stimulative treatment of affected animals in the early stages was frequently followed by recovery, but well-developed cases of the disease did not yield to such treatment.

Outbreaks of a similar disease were observed in the years 1893 and 1914 and these were supposed to be associated with the feeding of damaged corn or with the pasturing of the horses on cornstalks. Since similar conditions obtained in 1934-35, the disease was commonly referred to by clinicians as "cornstalk disease." The disease has also been termed "forage-poisoning," "encephalo-myelitis," "cerebro-spinal meningitis," etc.

Attempts were made to infect guinea-pigs, pigeons, rabbits, and mice, by the subcutaneous or intracerebral inoculation of unfiltered suspensions or filtrates made from the brains of affected horses. It is stated that many guinea-pigs injected with the unfiltered suspensions of brain-tissue died. It is assumed from what is said that these brain-tissue suspensions were bacteriologically sterile when inoculated. The inoculation with brain-tissue filtrates was followed by a lower mortality than the inoculation with unfiltered suspensions. There is no record in the table given of how many guinea-pigs or other experimental animals died following inoculations, and no mention is made of any histological examination of the nervous tissues of guinea-pigs which did die following injection. There is a disappointing lack of information also on the results of subinoculation tests.

The author, however, feels justified in concluding that "the period of incubation, the symptoms in fatally-inoculated guinea-pigs, and the negative thermal reactions failed to suggest the presence of the western equine encephalomyelitis virus as described by Meyer, Haring

and Howitt (1931) or of the eastern virus as described by Giltner and Shahan (1933)."

If the death of about 5,000 horses was really due to dietetic trouble (feeding experiments might have given some information on this point) it seems astonishing that (unless the results could be explained by technical errors) guinea-pigs inoculated with filtered or unfiltered and apparently bacteriologically sterile suspensions of the brain tissue from affected horses should die. It is worthy of note also that many outbreaks of encephalomyelitis among horses in other parts of America which were formerly believed to have been of dietetic origin, have since been shown to be due to a virus.

I. A. G.

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[Diffuse Leiomyoma and Diverticula of the Ileum of the Horse. Laval, H., and Carpentier, G. (1934.) (Trans. title.) *Rec. Méd. vét.* **110.** 9. 519-523.]

Records are given of the findings of several workers in connection with the formation of saccules or diverticula on the external surface of the ileum of the horse, and the narrowing of the lumen of the small intestine.

Megnin (*Bull. Soc. Méd. vét.* April 10, 1879) attributed these lesions to the presence of *Anoplocephala perfoliata.*

Petit and Germain (*Rec. Méd. vét.* October 15, 1909) reported a similar case, and suggested that the muscular hypertrophy of the ileum resulted from the mechanical occlusion of the ileo-caecal valve due to gaseous fermentation in the caecum. *Anoplocephala perfoliata* was not found in this case.

Clinical Symptoms.—A four-year-old horse showed slight debility and, after three months of good feeding, it gained weight and appeared normal. A month later an attack of colic occurred and this was followed by further debility. Strongyles and ascarids were demonstrated in the faeces and the animal was treated with anthelmintics. Periodical attacks of colic occurred, and eight months after the onset of symptoms, the condition rapidly became worse. The subject grew drowsy and appetite dull; emaciation was very marked, and the horse eventually died in a state of coma.

Post-mortem Examination.—This revealed the ileum as abnormally enlarged, the walls being hypertrophied and, in the posterior portion, the lumen was almost obliterated. Eight sessile swellings or "tumours," walnut-sized, were situated on the external surface in two parallel rows near the insertion of the mesentery. These diverticula did not project into the lumen of the gut: they had very thin walls, and communicated with the ileum by a narrow orifice. They contained some disintegrated material, and no parasites. The caecum and colon showed petechial haemorrhages, and strongyles were found in small numbers. The liver was degenerated and friable.

On transverse section the hypertrophied ileum showed thickening of the submucosa and considerable hypertrophy of the internal circular muscle fibres, with little change in the longitudinal fibres. The outstanding lesion was a hypertrophy of the muscular fibres, and this constituted a diffuse leiomyoma of the ileum.

The diverticula consisted of a fold of mucous membrane evaginated between the muscular layers. These may have been caused by gaseous fermentation, as suggested by Petit and Germain; they were not considered to be of major importance in the condition.

Four hypotheses are put forward as to the cause of death in the cases quoted by the various authors:—

(*a*) Rupture above the hypertrophied portion of the bowel.

(*b*) Rupture of part of the hypertrophied wall.

(*c*) A perforation of one of the diverticula allowing the entry of bacteria from the bowel, and thus causing ulceration (*cf.* gangrenous appendicitis in man).

(*d*) Some mechanical obstruction below the ileo-caecal valve giving rise to the muscular hypertrophy.

E. C. H.

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[The Treatment of Wounds in the Horse with the Larvae and Larval Extracts of Lucilia sericata. (Trans. title.) Vecten and Cosson. (1934.) *Bull. Acad. vét. France.* **7.** 8. 352-357.]

An account is given of the earlier attempts at wound treatment with various species of larvae. The treatment has been applied with success to a wounded horse.

As the result of an accident the horse was wounded in three places on the left foreleg. The largest wound was situated on the inner aspect of the fore-arm; the others were at the fetlock-joint and all were characterised by severe laceration of the skin and underlying tissues. The wounds were sutured, but the animal succeeded in tearing the dressings and sutures. Resuturing was not attempted, and the wounds were dressed in the usual method. Suppuration commenced and the limb became very swollen. It was then decided to apply the larval treatment. The wounds were irrigated and dried with gauze. The larvae were applied to the large upper wound, and the lower wounds were dressed with a gauze compress saturated with an extract prepared from the larvae.

Details are given of the apparatus devised to protect the wound from flies, while allowing the larvae to work freely; fine copper gauze was used for this purpose. The dressing was removed four days after its application, and

it was seen that the wound had a healthier appearance, and that granulation had begun. The granulation showed no tendency to bleed when irrigation was performed. The swelling of the limb disappeared and the animal's appetite returned to normal. A dry dressing was now applied to the upper wound, and the dressing of larval extract was renewed on the lower wounds. Three days later the wounds were cleansed and the upper one reimplanted with larvae; the lower wounds were dressed with extract as before. These wounds continued to heal rapidly, and a dressing of dry extract was now applied to the upper wound.

A careful record is given of the condition of the wounds as they healed, and details of the dressings applied to them are given.

A discussion on the paper is reported, and it is suggested that digestive ferment is secreted by the larvae, which hastens the process of repair. E. C. H.

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[A Case of Incomplete Lateral Metatarso-phalangeal Luxation in the Horse. (Trans. title.) Marcenac and Carnus (1934.) *Bull. Acad. vét. France.* **7.** 7. 301-305.]

Lateral luxation of the fetlock-joint is comparatively rare, and the case cited presents some unusual features; it indicates the use of radiology as an aid to diagnosis.

The mare was treated at the commencement for chronic synovitis of the near hind fetlock. The synovial swelling was situated between the extensor pedis tendon, and the internal lateral ligament of the fetlock-joint. The animal went lame at the trot. The usual treatment was applied.

Three weeks later a marked change was seen; the leg was slightly adducted and did not support any weight. The phalanx was deviated outwards from its correct alignment, and the joint was very swollen and painful. Mobility of the joint was increased, and crepitus was clearly heard. Clinical symptoms indicated a fracture of the distal end of the large metatarsal bone or of the first phalanx. A radiograph of the anterior aspect of the joint showed a partial outward luxation of the joint (reproduced). The external condyle of the metatarsus was seen to be resting in the groove of the head of the phalanx. Attempts at reduction under a general anaesthetic were unavailing; it was eventually effected by placing the animal on its back and pulling on the luxated limb with a chain and pulley block. The mare was placed in slings and a blister applied.

A month later a further radiograph (reproduced) showed that the articular surfaces were in perfect apposition; a large space was noted where the cartilage of the internal glenoid cavity was apparently missing in part. A favourable prognosis was given, however.

On the day following the luxation reappeared in a more acute form and the mare was destroyed. On *post-mortem* examination the appearance corresponded with the first radiograph. The superficial ligaments were torn; the internal lateral ligament was forced anteriorly and united with the deep ligament. The articular surfaces were eroded at several places with deep ulcerations near the edges of the phalangeal groove.

The condition appeared to arise from an internal hernia of the articular synovial sheath, producing degeneration and distension of the corresponding ligament. This distension caused displacement of the principal metatarsal sheath, which was thus insufficiently supported at its infero-internal extremity.

E. C. H.

Report

CENTRAL PROVINCES AND BERAR

ANNUAL REPORT ON THE WORKING OF THE CIVIL VETERINARY DEPARTMENT FOR THE YEAR ENDING MARCH 31st, 1935*

Owing to the lamented death of Major R. F. Stirling, who was in charge of the Department throughout the year, the report is submitted by Rai Sahib G. S. Shrivastava, the officiating director of veterinary services. The sudden death of Major Stirling is referred to in feeling terms and particular testimony is paid to his good work in connection with goat virus inoculation against rinderpest.

The staff consisted of a director, a deputy director, an investigation officer, four assistant directors, 13 veterinary inspectors, and 131 veterinary assistant surgeons.

Disease.—The number of outbreaks of contagious disease was less than for the past two years. Rinderpest was responsible for the heaviest mortality but there was a remarkable fall in the number of outbreaks. The extensive use of trypan blue in bovine piroplasmosis is giving good results. An intensive programme of inoculation against rinderpest was instituted and the method of goat virus inoculation was further perfected.

Anthrax appears to be general throughout the district. A considerable number of animals were protected with anti-serum. The number of cases treated on tour and the number of castrations performed increased satisfactorily. A new veterinary dispensary was opened, making a total of 104. The number of patients treated at dispensaries continued to increase. It is reported that in some cases the buildings are unsatisfactory. G. K. W.

*Nagpur, India, Government Printing, Re. 1.

THE NATIONAL VETERINARY BENEVOLENT AND MUTUAL DEFENCE SOCIETY

ANNUAL GENERAL MEETING AT MANCHESTER*

The Annual General Meeting of the National Veterinary Benevolent and Mutual Defence Society was held at the Hon. Secretary's Office, Sunlight House, Quay Street, Manchester, on Monday, March 30th, 1936, at 3 p.m.

In the absence of the President, the chair was taken by Mr. G. H. Locke, and apologies for unavoidable absence were read from Mr. W. Woods, Sir F. Hobday, Messrs. A. W. Noel Pillers, W. Lisle Downie, W. Jackson Young, J. H. Wright and A. H. Watson.

The minutes of the previous Annual General Meeting were read and confirmed.

Mr. G. H. Locke next referred briefly to the work done during the past year. There had been seven defence cases since the last Annual General Meeting compared with four the previous year. One of these was fought in court, and judgment, with costs, given in the Society's favour. In three cases advice was given and the disputes were settled out of court without cost to the Society. In the three other cases the claims were dropped after the Society had advised the members concerned to repudiate liability. On the benevolent side, the year commenced with 14 regular beneficiaries who received grants varying from £2 to £4 per month. One of the beneficiaries died towards the end of the year and a grant of £10 was made towards funeral and other expenses. Two further applications for assistance had been received and in each case a grant of £2 per month had been made.

The Hon. Secretary mentioned the illness of Mr. A. W. Noel Pillers and stated that on behalf of the Council he had written to Mrs. Pillers expressing the sympathy of the Society.

Election of Officers

The following officers were elected for 1936-37:—

President.—W. Woods, Esq., F.R.C.V.S., Wigan.

Vice-President.—J. Clarkson, Esq., M.R.C.V.S., Garforth.

Council.—Messrs. J. W. Brittlebank, Rhyl; A. Cornish-Bowden, Beckenham; E. H. Curbishley, Alderley Edge; F. L. Gooch, Stamford; O. V. Gunning, Tutbury; Sir Frederick Hobday, London; Messrs. J. Holroyd, Blackburn; D. Imrie, Glasgow; G. H. Locke, Manchester; R. Barons Nelder, Exeter; A. J. Wright, Macclesfield; A. W. Noel Pillers, Liverpool; W. D. Rees, Glamorgan; W. Shipley, Gt. Yarmouth; J. Spruell, Manchester; H. Sumner, senr., Liverpool; W. K. Townson, Peterborough; and J. H. Wright, Manchester.

Hon. Treasurer.—Mr. F. Hopkin, *O.B.E.*, M.R.C.V.S.

Hon. Secretary.—Mr. R. C. Locke, M.R.C.V.S., D.V.S.M. (VICT.).

Auditors.—Major J. Adamson (Honorary), and Messrs. Litton, Pownall, Blakey & Higson.

Hon. Treasurer's Report

The Hon. Treasurer, Mr. F. Hopkin, stated that the membership of the Society had increased to 424. During the year there had been six deaths and two resignations. A pleasing feature had been the increase in donations received and he expressed the hope that there would be a still larger income from this source in the future. The finances of the Society were in a sound position, but the whole of the income of the benevolent branch was being used in the relief of necessitous cases. He wished that the Society was in a position to give more assistance to its beneficiaries, but only by means of an increased membership could this be attained.

The report and financial statement were approved and adopted.

A vote of thanks was accorded to the Hon. Secretary and Hon. Treasurer for their work during the past year.

A discussion on the question of the extension of the scope of the Society's activities took place, and it was decided to refer the matter to the Council in order that they could shape a scheme for discussion at a Special General Meeting to be held at an early date.

The Hon. Treasurer reported that he had received an offer from a member of the Society of a donation of £50 provided that 50 new members or £50 in new donations were received by the Society prior to December 31st, 1936, and he made an appeal to the members to assist in attaining this object.

The question of members who were in arrear with their subscriptions was also raised, and the opinion was expressed that Rule II, which governed this point, was not well understood or appreciated by a number of members. It was decided that a letter be sent to all the members on a list submitted by the Hon. Treasurer, drawing attention to the enforcement of the rule.

There being no other business, the meeting was closed.

Appended is a list of (*a*) defence cases; (*b*) beneficiaries.

R. C. Locke, *Hon. Secretary.*

*Received for publication April 7th, 1936.

DEFENCE CASES

Case 1.—Complaint of alleged negligence against member in treatment of dog.

Advice given. No further action taken by complainant.

Case 2.—Threatened claim for loss of Alsatian from distemper alleged to have been contracted in member's kennels.

Support and advice given. Claim not proceeded with.

Case 3.—Threatened action for alleged lack of care of bitch whilst in member's kennels.

Advice given. Amicable settlement made.

Case 4.—Threatened claim against member in respect of certificate of health given by assistant for a bitch.

Advice given. Amicable settlement made.

Case 5.—Action-at-law against member for alleged negligent treatment of a dog.

Society defended. Judgment with costs given in favour of member.

Case 6.—Threatened action for loss of dog through alleged failure to diagnose the condition from which the animal was suffering.

Support and advice given. Action not proceeded with.

Case 7.—Claim against member for alleged negligence in treatment of dog.

Advice given. Particulars of settlement not yet available.

BENEFICIARIES

Name	*Age*	*Relation to M.R.C.V.S.*	*Grant*
M. J.	83	Widow	£2 per month.
K. L. H.	83	„	£2 „ „
T. E. H.	—	4 Children	£4 „ „
M. D.	63	Widow	£3 „ „
E. B. C.	53	„	£2 „ „
M. A.	41	„	£3 „ „
M. B. B.	70	Daughter	£2 „ „
K. E. C.	73	Widow	£2 „ „
S. Y.	78	„	£3 „ „
H. T.	71	„	*£3 „ „
E. M.	70	„	£2 „ „
A. J. P.	64	„	£2 „ „
S. J.	70	M.R.C.V.S.	£2 „ „
L. M. R.	40	Widow	£4 „ „
E. J. C.	80	Sister	£2 „ „
W. C.	81	M.R.C.V.S.	£2 „ „

*Plus £10 emergency grant.

His Majesty has granted his patronage to the Shire Horse Society, which has been honoured with the support of the reigning House during four successive reigns.

* * * * *

His Majesty the King, The Dairy, Balmoral Castle, has been granted a producer's licence for the supply of Grade A (T.T.) milk under the Milk (Special Designations) Scotland Order.

VICTORIA VETERINARY BENEVOLENT FUND

MEETING OF COUNCIL

A meeting of the Council of the Victoria Veterinary Benevolent Fund was held at 10, Red Lion Square, London, W.C.1., on Thursday, April 2nd, 1936, when the following members were present: Lieut.-Colonel J. W. Brittlebank (President), in the chair, Dr. O. Charnock Bradley, Messrs. H. W. Dawes, G. H. Livesey, G. H. Locke, J. W. McIntosh, Major-General Sir John Moore, Mr. W. Nairn, Mrs. M. S. Nickinson, Professor J. J. O'Connor, Messrs. Arnold Spicer, J. Willett, Wm. Woods, Professor G. H. Wooldridge and Captain W. G. Wragg.

The minutes of the previous meeting, having been published, were taken as read and signed as correct.

The Secretary announced letters of apology for absence from Captain J. R. Rider, Major C. W. Townsend, Mr. W. Jackson Young and Major F. L. Gooch—the last-mentioned on account of illness. The Secretary was directed to convey to Major Gooch the sympathy of the members of Council in his illness and their best wishes for his complete recovery.

Correspondence.—(1) From Mrs. O'Doherty, whose grant had been discontinued; the Secretary was instructed to make further enquiries as to the welfare of the children.

(2) From Mr. Warwick Fowle, suggesting the raising of a fund in commemoration of the accession and coronation of His Majesty King Edward VIII. The consideration of the suggestion was deferred to the next meeting, but the Secretary was instructed in the meantime to express the Council's gratitude to Mr. Fowle for his offer to subscribe to such a fund.

(3) From the Secretary of the North of Ireland V.M.A., sending lists of new subscribers to the fund, who had desired to become members as a direct outcome of the meeting he'd at the Belfast Congress of the National Veterinary Medical Association. The Secretary was instructed to express to Mr. Magowan the grateful appreciation of the Council for the interest he has taken in the fund.

(4) From the Secretary of the Veterinary Medical Association of Ireland transmitting a list of new subscribers to the fund and reporting that in October next a charity night for the benefit of the fund would be arranged in connection with the Greyhound Racing Track, Dublin. The Secretary was instructed to express the gratitude of the Council to Professor Browne for his continued interest in the welfare of the fund.

(5) From Mrs. Nickinson, Secretary of the Ladies' Guild, transmitting cheques for £53,

being proceeds of the dance held at the Prince's Galleries, London, and for £38, being £12 collected by the President, Mr. Wragg, and £26 by Mrs. Slinn.

It was unanimously resolved, "That the cordial thanks of the Council be conveyed to the President of the Ladies' Guild for the splendid assistance which the Guild has been able to give to the fund and also to Mrs. Nickinson for her successful work as Secretary of the fund."

It was further resolved, "That the thanks of the Council be conveyed to Mrs. Wragg and Mrs. Slinn for their additional gifts to the fund."

Secretary's Report

The following report of the Secretary was received and he was instructed to express the thanks of the Council to the respective donors:—

Subscriptions

	£	s.	d.
Behrens, Mrs. E. (special)	10	0	0
Foggie, A.		10	6
Gill, A. W.		10	6
Hobson, G.		10	6
Inglis, J. S. S.		10	6
Joyce, W.		10	6
Jewell, H. Captain		10	6
Kellett, J. R.		10	6
Kernohan, John		10	6
Kerr, W. R.		10	6
Magowan, J. I.		10	6
Moore, R.		10	6
Rice, J. P.		10	6
Robinson, T. H.		10	6
Rosborough, J. E.		10	6
Shanks, P. L.		10	6
Sim, M. J.		10	6
	£18	8	0

Donations

Collecting Boxes

Central Veterinary Society	4	9	11			
Cormack, J. L.	3	3	0			
North of Ireland V.M.A.	2	16	6			
Scottish Metropolitan Division	1	14	0			
South Eastern Division ...	2	10	0			
South Wales Division ...	2	15	0			
Young, W. Jackson ...	2	3	6			
				19	11	11
Donnelly, A. A.					10	6
Dunn, George (non-member) ...				1	1	0
Eastern Counties V.M.A.				5	0	0
From some London College Students (per Sir F. Hobday)				1	2	0
Irish Veterinary Medical Association 5s. Fund				12	15	0
Kately, — (per B. Best)					5	0
Ladies Veterinary Benevolent Guild, proceeds, Dance held in London	53	0	0			
„ per Mrs. Slinn ...	26	0	0			
„ per Mrs. Wragg ...	12	0	0			
				91	0	0
Nicholls (per B. Best)				2	10	0
Roberts, C.				2	5	6
Stainton, F. H. (Cruft's Dog Show)				15	0	0
Swann, H. C.				1	12	6
Yorkshire Vet. Med. Assn. Half of proceeds of Annual Dinner Dance				3	3	0
				£155	16	5

Life Membership.—It was resolved, "That Mrs. Wragg and Mrs. Slinn be elected Life Members of the Fund."

Annual Report.—The Secretary submitted a draft of the Annual Report which, with a few verbal amendments, was approved for issue to members.

Cases

161. Widow, aged 54. Daughter, age 20, ill and unemployed. The grant of £1 per week was continued.

185. Aged 62. Very ill and no income. The Secretary was instructed to make further enquiries and the Executive Committee was authorised to make a special grant to pay arrears of rent.

186. Aged 62. No income and unable to work. The Executive Committee reported that they had made a temporary grant to £1 a week. The action of the Executive Committee was approved and it was agreed that the grant be continued.

187. Widow, aged 55, two children. No income. It was decided to make a grant of £1 per week for the present quarter.

188. Member. A letter from a member calling attention to the circumstances of this member and his family was considered and the President undertook to make further enquiries.

189. Wife of unemployed member. A letter was received from this applicant stating that for the moment she was not in need of assistance.

190. Widow, aged 60. No occupation owing to ill-health. Total income about £40 a year. A grant of 10s. per week was made for the present quarter, the Secretary being instructed, in the meantime, to make further enquiries.

125. Member. The Secretary reported the death of this member. The question of continuing the grant to his widow was left in the hands of the Executive Committee.

Collecting Boxes. — The Secretary was authorised to obtain a further supply of collecting boxes.

Investments.—The Treasurer was authorised to invest the balance in the Donations Account in a suitable investment.

* * * * *

NORTH OF ENGLAND LADIES' GATHERING AT NEWCASTLE-ON-TYNE

Successful Effort for the Fund

The North of England ladies held their annual afternoon bridge and whist party in aid of the Benevolent Fund, in the University Union on Saturday, April 4th, 1936, concurrently with the Annual General Meeting of the North of England Division.

The arrangements were in the hands of a committee of ladies, with Mrs. J. R. Rider as chairman, and Mrs. Rider, senr., as Hon. Secretary. Prizes were presented by Mrs. W. Lyle Stewart, Mrs. Rider, senr., Mrs. R. Simpson, Mrs. H. Birkett Allan, Mrs. W. A. Doughty, and Mrs. J. H. Taylor.

An enjoyable afternoon was spent, at the conclusion of which the gentlemen joined the ladies at tea.

The prizes were presented to the successful competitors by Mrs. W. Lyle Stewart, wife of the new President. Following the usual procedure, the new President and his lady were introduced to the company by the retiring President, Mr. J. R. Rider, who in the course of his brief remarks, mentioned that the cumulative effort of the ladies, over a period of eight years, was a circumstance in which they cou'd take a justifiable pride, bearing in mind the small numerical strength of the Division. Their good work had been fully acknowledged by the Council of the Fund. A number of ardent supporters had been elected Lady Life Members of the Benevolent Fund, but he had been asked by these ladies to state specifically that they regarded this honour more as a recognition of their united efforts than as a personal reward. Mr. Rider concluded by thanking all those present for their continued support, and by wishing his successor a very happy year of office, to be terminated by a gathering of ladies as successful as that which was now drawing to a close.

As a result of the party the sum of £22 has been transmitted to the Benevolent Fund.

THE BRITISH MEDICAL ASSOCIATION

Professor R. J. Johnston, F.R.C.S., Eng., professor of gynaecology, Queen's University, Belfast, has been nominated as President of the British Medical Association for 1937-8. The annual meeting of the B.M.A. is to be held in 1937 in Belfast.

The Council of the B.M.A. has accepted the invitation of the Federal Council of the Medical Association of South Africa to hold the annual meeting in 1941 in South Africa.

N.V.M.A. Divisional Reports

NORTH OF ENGLAND V.M.A.*

ANNUAL MEETING AT NEWCASTLE-ON-TYNE

President's Address

The Annual General Meeting of the North of England Veterinary Medical Association was held in the Agricultural Department, Armstrong College, Newcastle-on-Tyne, on Saturday, April 4th, 1936.

The following members were present, Messrs. J. R. Rider, F. Pickering, T. R. Jarvie, T. M. Mitchell, W. Lyle Stewart, J. J. McDowall, C. Nicholson, A. C. Forbes, H. Birkett Allan, T. Wilkinson, H. P. Lightfoot, G. Atkinson, J. J. Smith, I. A. Graham, H. Bain and H. S. Elphick. Messrs. D. S. Rabagliati, G. Scott and G. F. Pickering were present as visitors.

Demonstration.—Mr. W. Lyle Stewart gave an interesting demonstration with exhibits on several poultry diseases, including tuberculosis and leukaemia, and after luncheon in the University Union the business meeting was held in the Agricultural Department.

The minutes, having been published in the *Veterinary Record*, were taken as read and were signed by the Chairman as a correct record.

Apologies for absence were received from Messrs. W. Summers, W. J. Young, G. M. G. Oliver, J. D. Peele, N. Macdonald, Dr. Bradley, Sir F. Hobday, Messrs. J. H. Taylor, W. A. Doughty, P. Snaith, W. W. Wilson, E. F. McCleery, C. G. Hill, H. Hicks, and E. R. Callender.

In accordance with a request made at the December meeting, a letter had been immediately dispatched to Mr. Clement Elphick asking him to reconsider his resignation from the Association, but as no reply had been received his resignation had to be accepted as from December 31st, 1935.

To fill the vacancy on the Alan, Duke of Northumberland Memorial Fund Committee caused by Mr. Elphick's resignation, Mr. Lyle Stewart nominated Mr. Hugh Bain, of Wooler, who was accepted by the meeting.

Obituary.—The Chairman announced that since the last meeting the death of two members, Mr. R. Barker and Mr. G. M. Mitchell, had occurred and that Mr. D. Starkey had suffered a grievous loss by the death of his wife. A resolution of sympathy was passed and demonstrated by the usual short silence on the part of members.

Correspondence.—(1) Invitation to the Congress of the Royal Sanitary Institute to

*Received for publication, April 17th, 1936.

be held in Southport from July 6th to 11th, 1936.

The Council had considered the matter, but in view of the straitened state of finances had decided not to send an official delegate.

(2) Request from the N.V.M.A. for representatives to the Council for the year 1936-37.

Mr. Mitchell proposed that Messrs. Wilkinson and Taylor be asked to continue as divisional representatives and to this the meeting agreed.

(3) Letter from the Dumfries and Galloway Division regarding scale of fees charged for testing.

This was referred to the heading of Report of Council, as the same subject entered to some extent into that report.

Report of Council

This stated that two meetings had been held, one on January 2nd, 1936, having been convened to consider and approve the details of the Course in Poultry Husbandry and Disease Control which had since been inaugurated quite satisfactorily.

Further consideration took place of Rule 13, which had been referred to the Council by the December General Meeting. The following amendment, "That retiring members of Council be eligible for re-election," was approved for submission to the Annual General Meeting.

The second meeting was held on March 10th, 1936, to receive accounts and arrange the Annual General Meeting.

In connection with the scheme for the Formation of Tubercle-free Herds, the Durham County Branch, N.F.U., intimated that they had agreed to co-operate in the scheme and had appointed six representatives to serve on the proposed Joint Committee.

As it was a matter of urgency, the Council agreed that a meeting of the Joint Committee should be called without delay and that representatives of the N.F.U. be notified accordingly. It was agreed that the following represent the Association: (1) The President and Hon. Secretary, *ex-officio*, Messrs. Allan and Callender; (2) Messrs. Christopher, Wilkinson, McDowall and Mitchell.

This meeting was called for March 24th, 1936, and was duly held, when Mr. J. R. Rider was appointed Chairman and Mr. H. B. Allan Secretary to the committee. Mr. Allan was now asked to give some account of the proceedings.

He reported that the committee consisted of eight members of the N.E.V.M.A. and six of the N.F.U. The appointment of Mr. F. Marshall, Secretary of the Durham N.F.U., to be a member of the committee, *ex-officio*, had been agreed to, making a total of eight veterinary surgeons and seven agriculturists on the committee.

Some amendments of details had been made in the draft of the scheme and in due course copies of the amended proposals would be sent to the Association.

The matter of fees for testing had been taken up and a suggestion that the present rate be revised had been received. This question had been referred to this meeting.

It had been decided to call a meeting of the Joint Committee for Tuesday, April 7th, providing the matter of fees was satisfactorily concluded.

There was nothing more of immediate importance to report.

Following on this Mr. Rider read a letter from the Dumfries and Galloway Division bearing on the question of fees for these services. It was thought by that Division that a more or less uniform scale with modifications where necessary throughout W. and S.W. Scotland and the North of England would be valuable, and an exchange of views was invited.

Mr. Mitchell said the question of a scale of fees was going to be of great moment, the subsidising of farmers by the Ministry of Agriculture to the extent of certain sums for tuberculin testing having an important bearing on the matter. He thought the agricultural members of the Joint Committee were anxious to eliminate the customary charge for mileage. To assist in the discussion of this subject he had worked out certain figures which he submitted to the meeting.

Mr. Allan said that farmers asked for a composite fee and referred to figures which had been mentioned at the meeting of the Joint Committee. The average herd in the county was about 30-50, including most of the adult stock. He suggested that as the scheme was to be a sort of contract it was reasonable to expect that a reduced rate be offered.

Mr. McDowall suggested an alternative method of computing the charges which he thought would render calculation very simple.

Mr. Wilkinson disagreed with the absence of mileage charge, though Mr. Mitchell's scale did appeal to him. The charge in the case of the smaller numbers, however, seemed too large.

In reply to Mr. Rider's request that he inform the meeting of any similar scale in Yorkshire, Major Rabagliati said there was no such scale in his area.

After further discussion, Mr. Mitchell suggested an addition to the scale, *i.e.*, a minimum charge. Travelling to test only one animal, as in some cases, would be expensive and might be a definite loss. In connection with this, Mr. Lyle Stewart suggested that it might be possible to get groups of farmers with very few animals to combine their stock at a place and date agreed among themselves, when the whole could be tested as one large herd.

Mr. Simpson, of Carlisle, in reply to Mr. Rider's request for information on any scale extant in his area, said the matter was under discussion there, but he had no information as yet to offer as no decision had yet been arrived at.

Mr. Rider summarised the aim of the discussion in saying that the meeting was anxious to get some agreed scale which would be fair and reasonable to all and which could be taken back, under the authority of the Association, to the Joint Committee. These figures could then be sent to the Dumfries and Galloway Division in answer to their enquiries.

Mr. Mitchell proposed the adoption of his scale and Mr. Nicholson seconded it.

Mr. Wilkinson was of the opinion that for the Durham scheme some power of bargaining should be accorded to the Association's representatives and this was agreed.

A motion embodying these points, "That the scale be adopted as it stands and that representatives on the Joint Committee be allowed discretionary powers of bargaining," was moved and carried.

Balance Sheet.—The Chairman asked for any questions regarding the balance sheet, which had been included in the Council report and which was distributed to members, but none were asked.

Nomination for Membership.—Mr. Lyle Stewart proposed Mr. Geoffrey L. Pickering, recently appointed Chief Veterinary Officer for Northumberland, for membership, and this was seconded by Mr. Wilkinson.

Induction of New President: Mr. Lyle Stewart's Address

Mr. Rider then announced it his pleasant duty to ask Mr. W. Lyle Stewart to come forward and take the Chair. Mr. Rider wished him a very happy and successful year of office.

Mr. Stewart then delivered his presidential address, which was in the following terms:

My first presidential duty is a very pleasant one. All of us, I am sure, are conscious of how much this Division owes to the Rider family—to Mr. and Mrs. Rider, senior, and Mr. and Mrs. Rider, junior. They have been a mighty power for good during a difficult period in our professional history. For more than ten years Mr. J. R. Rider has been our faithful Secretary and Treasurer, and during the last year he cheerfully shouldered the additional burden of President. Always courteous, tactful, efficient, and ready to serve us, Mr. Rider has carried on in season and out of season—working often at considerable personal inconvenience, on our behalf. I am sure you will agree that our reputation as a progressive Division is in very large measure due to the energy and ability of Mr. Rider, and I have the greatest possible pleasure in asking you to accord him a sincere vote of thanks for the unselfish way he has served us, and particularly for his triple services during the past year.

Secondly, I wish to thank you for choosing me as your President for the coming year. When I look back and think of the worthy men who have filled this office since the inception of the Division, in 1864, I am sensible of the great honour you have done me. If I may be more personal, I would add that as a humble research officer addressing a large company of practitioners, it gives me great pleasure to know that our relations have been and still are so cordial. I desire to thank all members of the Society, and can assure them I will do my best to make my year of office a successful one, knowing as I do that I shall have the active support of all our members.

It is customary on this occasion for the new President to review some phases of our professional activities, and to praise, exhort, criticise or comment, as may seem to him in the circumstances right and proper. A year ago our President dealt very ably with the necessity for professional unity, and in continuation thereof I would like this afternoon to direct your thoughts to a brief consideration of one or two factors which have profoundly affected our profession during the post-war years of reconstruction. The first influence is the general trend towards preventive medicine. The triumphant progressive discoveries of Pasteur and Koch laid the foundations of preventive medicine some sixty years ago, and led us to that increase in knowledge which allowed us to control or eradicate diseases such as anthrax, blackquarter, glanders, rabies and tetanus. It has seemed to me that to a large extent the control of the contagious diseases has, hitherto, been vested in a select band of officials or specialists, and no real attempt has been made to interest veterinary practitioners in the epizootiology and control of contagious diseases common, it may be, in their own areas. This defect was not so noticeable in the halcyon heydays of equine practice and curative medicine, but it becomes a patent defect in an era of preventive medicine. I think that sheep diseases form a case in point. Twenty years ago these diseases were little understood, but war-time conditions illustrated their challenge to national productivity, and when enlightened public opinion finally set up an organisation to deal with them, these so-called mysterious diseases yielded up their secrets one by one in the searchlight of scientific enquiry. Thus braxy, liver rot, lamb dysentery, parasitic diseases and finally louping ill, have all been added to the list of preventable diseases.

Within the last decade, however, the idea of disease prevention has permeated the entire rank and file of our profession, and I venture to

think that it is along this line that further progress will continue to be made. As notable examples may be cited bovine tuberculosis, contagious abortion, mastitis and Johne's disease. To-day prevention is the watchword in all these diseases, and many practitioners are now actively engaged in supervising appropriate schemes for their eradication and control. Ten years ago I was mildly patronised for suggesting that herds might be freed from contagious abortion by blood tests, but I think there is to-day scarcely a practitioner in this room who is not using this method with great success in one or more herds. As a friend said to me recently, "Many farmers have switched over to milk production, and since cows represent their capital, these farmers can scarcely afford to be without the information which the blood test gives—the risks are too great." The ideal of prevention applies likewise to tuberculosis, mastitis, and in a less degree to Johne's disease. These diseases are all preventable, and I do not consider it unnecessary to remark that we as veterinarians must embrace this new idea with enthusiasm. If we remain unconvinced or half-hearted about prevention we shall fail in our task, which is to render the best possible service to agriculture.

Eradication schemes must be constructed on sound, up-to-date lines, and, moreover, their working must be regularly and carefully supervised. When one considers the infinitely small proportion of the dairy herds in our counties which to-day are free from these diseases, one begins to realise the vast field which exists for an extension of this desirable and useful work.

Each span of ten years brings with it what we call changes, but what the historian calls progress. Some of these changes will appear irksome, and some desirable, but at all events, change is inevitable, and it is in the highest degree essential that our inner politics should be of the progressive kind. We ought not to wait till we are pushed into effecting changes by forces from without, but knowing what is best for the community, our professional leaders should ever be in the van of public opinion, and should endeavour by word and action to inspire the rank and file with like ideas.

May I add this? Prophylactic medicine involves the general use of many vaccines and serums, and it is my considered opinion that we should exert ourselves to see that these are used under veterinary supervision. I say this, not on account of any pecuniary advantage resulting to the individual handling biological products, but on the higher ground of public utility. I deplore the depletion in the ranks of general practice, and believe that every effort should be made to render practitioners more efficient in the application of preventive medicine, so that they may be general practitioners in the true sense of the term. If Europe becomes involved in another war, is it likely that home food supplies will be any less important than they proved to be in the period 1914-1918? I think not! In that event we should probably see the Ministry of Agriculture promoted to first-class status, and every effort would be made to conserve the health and productivity of our flocks and herds. To enlist the interest of practitioners now is of paramount national importance, and, in my opinion, ways and means should be made a cardinal point in veterinary politics.

There can be no doubt that as time passes our work becomes more diversified. The constant, insistent quest for new experimental data is apt, in the short space of one generation, to transform completely our ideas of diagnosis, treatment and prevention. Striking advances have been made in the study of the ultramicroscopic virus, of hormones and in the chemistry of the vitamins. Recent work, of which I would particularly mention the brilliant work of Theiler and Green in South Africa, has demonstrated the importance of undernutrition and malnutrition as predisposing or direct causes of disease in animals. The prevailing tendency in medicine to-day is the increasing dominance of chemical methods and chemical ideas. The experiment of to-day becomes the routine of to-morrow, and it is likely that the proper approach to the study of the more obscure metabolic diseases of animals lies along these lines. I refer to disorders such as milk fever, lactation tetany and pregnancy toxaemia of ewes. I was concerned in an interesting case recently which illustrates my point. The diagnosis of an obscure cattle disease was somewhat indefinite, but chemical examination of the urine disclosed the presence of acetone, indicating that we were dealing with a disorder of fat metabolism.

Gratifying as is all this increase of knowledge, it makes great demands on our time, and it is an encouraging sign that amid the hurly-burly of a busy life, our members have so loyally supported our pioneer efforts with regard to the special course in poultry husbandry. All who have attended can testify how enjoyable these lectures have been. I would also commend to you the voluntary scheme for the eradication of tuberculosis in young stock. This is an important pioneer effort and I trust you will consider it very carefully.

I think this proves we are a healthy and vigorous association, and that our members are anxious to acquire the most up-to-date knowledge in all branches of our subject. Personally I see no reason why similar courses on, say, sheep husbandry, cattle husbandry, diseases of calves, dietetics, etc., should not follow. We cannot know too much about our own jobs, and

keeping our knowledge up-to-date is the single gateway to the most efficient service.

The expansion in the public health services is another factor of considerable importance to the veterinary profession. This welcome interest in veterinary public health is I hope due to the rising tide of public opinion, and far from deploring it, I regard it as a matter for congratulation that at long last we have come to be recognised as the proper authorities to be entrusted with the duties of safeguarding our national supplies of milk and meat. Had we been passed over in recent legislation, a real grievance would have existed and an act perpetrated sufficient to have retarded the hand of progress for many years. May I remind you that it is less than ten years since police sergeants were reported to be detaining cows under the Tuberculosis Order, and chief constables were enjoying emoluments as inspectors under the Contagious Diseases of Animals Act? The county veterinary service has come to stay, and surely none, at least within our own ranks, can question the desirability of this essential service which has opened up a new avenue to our graduates. Whatever grievances do exist are those which inevitably accompany sweeping changes, and more especially changes which were thrust upon us, and for which we were in a measure unprepared. The main point at issue appears to be as to the precise manner in which county councils decide to carry out their additional duties under the various new acts and schemes. The modern trend is at present towards centralised control, and some people believe that bovine abortion, mastitis and Johne's disease will eventually follow tuberculosis, and that their control will be the special business of a central or provincial authority. I have no wish to enter minutely into the pros and cons of this interesting thought, but stating the position as it seems to me, I would add that recent legislation has perhaps been little to the liking of some county councils, and they have not troubled to appoint veterinary officers until this has been obligatory; their views, it may be, have frequently been too parochial, and their actions guided not so much by the broad national viewpoint, as by the seemingly laudable object of keeping down local rates. Here again, as in all things, the deciding factor should be the common weal, and it behoves our "National" body—representative of all interests—to be exceedingly watchful in seeing that a just balance is maintained. I could mention several rural communities which, for practical purposes, are at present deprived of qualified veterinary advice presumably because certain practices in the more sparsely-populated parts of the country have not been sufficiently attractive to recent graduates. The net result is a great increase in quackery with its attendant evils. Now, I confess to having but a poor idea of business and of business methods, but what valid objections can there be to employing four or five part-time assistant veterinary officers, each man to carry out one-quarter or one-fifth of a whole-time man's duties, in these several areas at present without a qualified practitioner. Worked in this way, the expense need not be greater, and it seems to me that a scheme such as this is needed to attract graduates of the right quality to country practice; I humbly suggest this, therefore, as a problem requiring the joint action of our Association with county branches of the National Farmers' Union.

Finally, a word of praise and thanks to those of our members who voluntarily have given long hours of their time to discussions around the various council tables of our profession. I wonder if we are always sufficiently aware of what we owe them? Theirs is a labour of love and not of thanks, and they at least deserve our whole-hearted support. Remember, we are all members of a small but, I trust, united profession—whole-time, part-time, general practitioner and, may I add, investigation officer—all part of one whole, and I view the future with optimism, believing as I do that it lies within our power to settle minor differences, and to hammer out a common policy adjusted to suit modern conditions of service.

As retiring President, Mr. Rider said he wished first to thank Mr. Stewart for his speech and secondly to offer the meeting his most cordial thanks for the very charming way in which they had shown their appreciation of his services.

From the Chair, Mr. Stewart then asked for any items under "Any other business."

On the conclusion of the business, the members adjourned to the University Union, where they joined the ladies at tea.

J. R. Rider, *Hon. Secretary.*

REGISTER OF ATTESTED HERDS

A further issue of the Register of Attested Herds has been published jointly by the Ministry of Agriculture and Fisheries and the Department of Agriculture for Scotland. The Register has been brought up to March 31st, 1936, on which date 81 herds in England and 88 herds in Scotland were attested, as compared with 31 and 27 respectively when the previous issue was made on August 31st last. The inclusion of a herd on this Register is evidence that the herd was at the date of attestation free from tuberculosis infection, whilst the observance of the rules of the schemes reduces the risk of the introduction of further infection to the lowest practicable point. The owner of an attested herd is entitled to claim from the Department concerned a bonus of 1d. per gallon in respect of milk sold from the herd through the medium of the Milk Marketing Boards.

Full particulars of the schemes and copies of the Register are obtainable from the offices of the Departments concerned in London and Edinburgh.

SOUTH WALES V.M.A.*

DEMONSTRATIONS BY PROFESSOR WRIGHT AT SWANSEA

A General Meeting of the above Division was held at Swansea on Friday, March 20th, 1936.

Members first met at the Abattoirs at 2.30 p.m. when Professor J. G. Wright, F.R.C.V.S., of the Royal Veterinary College, London, demonstrated the following:—

(1) *Hysterectomy on a Pregnant Bitch.*—This subject for operation was kindly brought along by Mr. A. J. Cattell. There was a history of a motor accident causing pelvic fracture, some long time previous. The bitch was due to whelp on March 18th, 1936. On Thursday, March 19th, she whelped three puppies and afterwards was unable to whelp the remainder.

Operation. The bitch was anaesthetised with nembutal (grs. vi, given intravenously, using the left recurrent tarsal vein), perfect surgical anaesthesia being thereby established. Three large puppies were removed, along with the uterus, the first of these being of enormous size, showing a typical picture of foetal anasarca. The whole operation was completed in 35 minutes. At the close of the meeting the subject showed signs of regaining consciousness. [Mr. Cattell reports that the bitch died two days later.]

(2) *Intravenous Nembutal in Two Kittens.*—The right radial vein was used in both cases, the doses received being 2 and 0·5 grs. respectively.

(3) *Dog for Destruction (Nembutal).*—This was a terrier dog weighing approximately 18 lb. As it was brought in for destruction, Professor Wright decided to demonstrate the various stages of anaesthesia leading to death of the subject.

Gr. iv nembutal, intravenously, produced surgical anaesthesia; gr. vi gave deep anaesthesia with respirations and pulse remaining strong and regular; gr. viiss produced some lack of co-ordination of respirations—but these improved later; gr. xss produced death.

(4) *Epidural Anaesthesia in a Cow.*—After a brief explanation of the anatomical arrangement of the spinal cord and of its variations in the different species of animals, the demonstrator proceeded to apply epidural anaesthesia in this subject. Procaine (7 c.c. of a 5 per cent. solution) was injected *via* the first inter-coccygeal space after previously infiltrating the skin and subcutaneous tissue with local anaesthetic.

The Professor showed that the depth of the spinal canal below the skin surface was one-and-a-quarter inches. Anaesthesia was produced in 15 minutes, with loss of response to peripheral stimulations in an area around the anus and vulva down to the escutcheon, both anal and vaginal sphincters being relaxed.

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Business Meeting

The proceedings were then adjourned to the Grand Hotel, and here the Division met at 5.30 p.m.

Mr. J. F. Rees occupied the chair, and those present included: Messrs. C. J. Pugh, D. E. Pugh, G. H. Thomas, C. Watson, L. A. Watson, A. J. Cattell, W. D. John, J. C. Hill, A. F. Good, S. Mathias, J. L. Perry, J. S. Pike, T. H. Jones, D. E. Davies, T. R. Thomas, D. G. Davies, D. H. Thomas, J. F. John, and A. T. Morgan.

Letters of apology for absence were received from Mr. D. J. Anthony and Lieut.-Colonel P. J. Simpson.

Election of President

The first business of the meeting was the appointment of President. Mr. J. C. Hill seconded by Mr. D. E. Pugh, proposed that Mr. J. S. Pike be elected President for the ensuing year. This was carried unanimously.

The new President then took the chair and thanked the members, in appropriate terms, for the honour bestowed upon him.

He then proposed a hearty vote of thanks to Professor Wright for his kindness in coming to visit them at Swansea and for the able and instructive way in which he conducted his demonstrations, Mr. A. J. Cattell seconding the proposition, which was carried with acclamation.

Next Meeting.—The Hon. Secretary then asked the members if they had any suggestions for the council as to where the next General Meeting should be held. Mr. J. C. Hill proposed that the matter be left to the choice of the President, and this met with the approval of the meeting.

There being no other business, the meeting was adjourned.

The generous hospitality of Captain D. G. Davies was then enjoyed at tea. At the close of the repast, the President thanked the host and then called upon Mr. J. C. Hill to say a few words. The latter eloquently expressed gratitude, on behalf of those present, to Professor Wright for his extreme kindness in placing himself at the disposal of the Division, and thanked the Professor for the invaluable practical knowledge that they had all gained from him that afternoon. The Hon. Secretary then said how willingly Professor Wright had accepted the invitation to address them when he asked him to do so at the Belfast Congress, and that he hoped the Professor would visit them again at some future meeting.

Professor Wright, in reply, thanked the members for the homely welcome which they had given him and in reply to the Hon. Secretary, expressed his readiness to visit the Division at a future date.

T. R. Thomas, *Hon. Secretary.*

In Parliament

The following questions and answers have been recorded in the House of Commons recently:

ACCREDITED MILK LICENCES (FARM BUILDINGS)

Mr. ASSHETON asked the Minister of Health (1) whether he is aware that injustice is being done to many farmers owing to the lack of uniformity of standard of farm buildings required by the different county councils as the condition of a grant of an accredited milk licence; and whether he will take steps to investigate this matter;

(2) whether he can explain why there are 2,092 farmers in Cheshire licensed for accredited milk production, whereas there are only 447 in Lancashire and 427 in the West Riding of Yorkshire; and to what extent this is due to the lack of uniformity in the standard of farm buildings required as a condition of the grant of an accredited milk licence?

Sir K. WOOD: I am aware that there is said to be a lack of uniformity between the requirements of certain county councils for the granting of Grade A milk producers' licences which are necessary before the producers are included in the list of accredited producers kept by the Milk Marketing Board. I do not consider it practicable to lay down a detailed code, but in a recent circular, of which I am sending my hon. Friend a copy, I have drawn the attention of local authorities to the principles by which they should be guided. I have offered to give the authorities such assistance as I can, with due regard to the exercise of my jurisdiction in the matter of appeals upon individual cases, and I will have special inquiries made in the counties referred to by my hon. Friend.

. . . . . .

WARBLE FLY

Mr. GRAHAM WHITE asked the Minister of Agriculture whether he can make any statement with regard to the efforts being made to eradicate the warble fly?

The MINISTER OF AGRICULTURE (Mr. Elliot): An Order applicable to the whole of Great Britain was made on January 31st, 1936, and widely promulgated, requiring the periodical treatment of cattle infested with the warble fly maggot during the period from March to June in each year, when the maggots are ripe for destruction. Similar Orders were made by the Governments of Northern Ireland and the Irish Free State. The Orders require the destruction of the maggots either by the removal of the maggots from the back of the cattle by mechanical means or by dressing the catttle at monthly intervals with a prescribed derris preparation. No estimate can be made as to the beneficial effects of the Order until after the warble season of 1937.

PROVISION OF GAS MASKS FOR HORSES

The possibility of providing gas masks for horses is being considered by the Home Office officials responsible for the air raid protection system for Britain now being prepared. It is probable that the Royal Veterinary College will be asked to give advice, after which specimen respirators may be made and tested.

Notes and News

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events

May 11th.—Meeting of the Editorial Committee, N.V.M.A., at 2, Verulam Buildings, Gray's Inn, W.C.1, 4 p.m.

May 21st.—Voting Papers issued, R.C.V.S. Council Election.

May 28th.—R.C.V.S. Council Election Voting Papers due.

May 28th.—General Meeting of the Lancashire Division, N.V.M.A., at Manchester.

June 3rd.—N.V.M.A. Committee Meetings at the Royal (Dick) Veterinary College, Edinburgh.

June 4th.—N.V.M.A. Council and Committee Meetings, at the Royal (Dick) Veterinary College, Edinburgh.

June 4th.—R.C.V.S. Annual Meeting and Luncheon in Edinburgh.

June 11th.—D.V.S.M. Examination begins.

June 12th.—R.A.V.C. Annual Dinner, Grosvenor House, W.1., at 8 p.m.

June 24th.—R.C.V.S. Committee Meetings.

June 25th.—R.C.V.S. Committee Meetings.

June 26th.—R.C.V.S. Committee and Council Meetings.

June 29th.—R.C.V.S. Membership Examinations begin.

Sept. 14th-18th.—N.V.M.A. Annual Congress, Scarborough.

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PERSONAL

CHIEF VETERINARY OFFICER FOR LIVERPOOL

Mr. H. T. Matthews, the present deputy veterinary officer, was recommended by the Liverpool Health Committee, on April 30th, to succeed the late Captain A. W. Noel Pillers as chief veterinary officer to the Corporation at a salary of £1,000.

Mr. Matthews has been on the staff of the Veterinary Department of the Corporation since 1923, and has been Captain Pillers' deputy since 1932.

Mr. Matthews, who holds the qualifications of F.R.C.V.S., B.V.Sc., and D.V.H., became in January last a lecturer in veterinary hygienics at Manchester University.

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Marriage.—STUART—TAYLOR. On May 2nd, 1936, at St. Wilfrid's Church, Haywards Heath, Kenneth Stuart, late of Leyton, Essex, to Muriel Ormerod, daughter of Mr. Henry Taylor, F.R.C.V.S., and Mrs. Taylor, Ormerod House, Haywards Heath.

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GLOUCESTERSHIRE PRACTITIONER'S MANY BEQUESTS

Mr. John Clark James, M.R.C.V.S., of Thornbury, Gloucestershire, retired veterinary surgeon, who died on January 1st, aged 87, left estate of the gross value of £19,220, with net personalty £18,054.

Mr. James left £100 to the Church of England Waifs and Strays Society; £200 to the Young Men's Christian Association; £200 to Muller's Orphanage; £200 to St. Dunstan's Hostel; £100 to the British and Foreign Bible Society; £200 to the Society for the Propagation of the Gospel; £100 to the Additional Curates Society; £100 to the Victoria Veterinary Benevolent Fund; £100 to the British and Foreign Sailors Society; £200 to Bristol Eye Hospital; and £100 to Bristol Blind Asylum. He also left, subject to life interests, £200 to the Victoria Veterinary Benevolent Fund; £100 to Bristol Eye Hospital; £200 to Muller's Orphanage; £100 to the National Institute for the Blind; £100 to the Young Men's Christian Association; £100 to the Society for the Propagation of the Gospel; £100 to the British and Foreign Bible Society; £100 to the Church of England Waifs and Strays Society; £100 to the Additional Curates Society; £100 to the Tower Hamlets Mission; and £100 to St. Dunstan's Hostel; and, subject to his wife's interest for life or during widowhood, he left £400 to Muller's Orphanage; £300 to the Young Men's Christian Association; £100 to the Bristol Eye Hospital; £100 to the Society for the Propagation of the Gospel; £300 to the Parish Council of Thornbury; £300 to Thornbury Parochial Church Council; £200 to the deacons of the Congregational Chapel, Thornbury; £200 to the deacons of the Wesley Chapel, Thornbury; £200 to the deacons of the Baptist Chapel, Thornbury; £50 to Thornbury Parochial Church Council; £200 to Dr. Barnardo's Homes; £100 to St. Dunstan's Hostel; £100 to the Additional Curates Society; £100 to the Society for the Promotion of Christian Knowledge; £100 to the Tower Hamlets Mission; £100 to Baden-Powell Boy Scouts; £100 to the Church Lads Brigade; £100 to Bristol Boys Brigade; £100 to Bristol Blind Asylum; £100 to Bristol Branch of St. John Ambulance Brigade; and after other bequests the residue of the property to the Salvation Army.

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R.C.V.S. OBITUARY

Franklin, Edward, *O.B.E.*, T.D., Lieut.-Colonel R.A.V.C. (T.A.) (retd.). Graduated N. Edinburgh, December 16th, 1889; died April 28th, 1936, aged 71 years.

Pollock, George Hill, Chelmsford House, Fulford Road, York. Graduated Glasgow, April 13th, 1880; died April 29th, 1936, aged 78 years.

Stableford, John Porter, Ardmore, North Promenade, St. Anne's-on-Sea, Lancashire. Graduated N. Edinburgh, May 23rd, 1901; died May 2nd, 1936, aged 60 years.

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Lieut.-Colonel Franklin

Lieut.-Colonel Franklin, whose death we record above with much regret, had been in failing health for some time. He was, says the *Worcester Daily Times*, one of the best-known figures in Territorial circles of pre-war and later days. "He was a Yorkshireman, and was proud of the fact, and his qualities of hearty good humour, friendship and love of sport, made him welcome wherever he went. Colonel Franklin was a veterinary surgeon of long standing. He came to Worcester some forty years ago as assistant to Messrs. Perrins and Robertson, and subsequently became a partner in the firm, later taking charge of the business, when his genial qualities and his ability in his calling soon acquired for him a considerable practice. 'As an ardent Volunteer and, later, a Territorial, he also made many friends and extended his interests. Colonel Franklin was a familiar figure in the city and very much liked. He was keenly interested in cricket and one of the times to which he looked forward during the cricket season was the visit of the Yorkshire team. Many of them were personal friends of his and he was accustomed to entertain them during their stay in the city."

Colonel Franklin joined the Worcestershire Yeomanry as Veterinary Officer, in 1896, and remained a member for many years. He was in camp with the Yeomanry when war broke out and when the R.A.V.C. South Midland Division Veterinary Hospital Mobile Veterinary Section was mobilised at Worcester on August 4th, 1914, it was under the command of Major (as he was then) Franklin. The unit was stationed at Leamington for some months and was then broken up and transferred to the regular army as part of the personnel of the R.A.V.C., subsequently moving to France where Colonel Franklin served throughout the war.

Colonel Franklin was extremely popular with all the officers and other ranks during his long service with the Yeomanry and he never missed a camp. He was a member of the Worcestershire Territorial Association for many years, maintaining his interest in the Territorial Army after returning from the war. He was in command of the 48th South Midland R.A.V.C. when it was reformed in 1921. He left the service in 1926 with the rank of Lieut.-Colonel on reaching the age limit. He was awarded the O.B.E. for services in the field and he was also in possession of the Territorial Decoration for long and meritorious service with the Territorial Army.

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A colleague writes: "By the death of Colonel Franklin, Worcester loses one of its most popular citizens and the veterinary profession one of its most popular and successful practitioners. Born in Yorkshire, his general character was typical of that country, and his love of sport of all kinds made him popular with all classes. His love of order was evident as soon as one entered his premises, whether it was his dispensary and consulting room or his infirmary, horse boxes and kennels; and it was 'woe betide' any student, pupil or newly-fledged assistant who was not equally 'tidily-minded.' Although 71 years of age he worked actively until the last twelve months, when failing health compelled him to take things more quietly although he was a man who could never be idle. It is a pity that such men grow old!"

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Major G. H. Pollock

Major George H. Pollock, who was for many years the Veterinary Surgeon to the City and Corporation of York, died a few days ago at the ripe age of 78. Major Pollock graduated, somewhat late in life, from the Glasgow College in 1880, having spent some of his youthful years in the ranks of the Scots Greys—an association of which he was always proud. In the City of York, in addition to his general practice, he was for very many years Superintendent Veterinary Officer to the York Markets Committee, and in that capacity he was responsible for the carrying out of the many regulations of the Ministry regarding the importation of Irish cattle. He also held a very responsible position as Veterinary Referee to the Yorkshire Insurance Company, and at one time this took him all over Great Britain. As a *practical* man his opinion was one which inspired trust and this feature was much appreciated by the members of his large clientele.

Major Pollock had seen a good deal of active service, and was well-nigh 60 years of age when he volunteered and was accepted for duty in the European War.

The *York Evening Press* says of him: "He was a cheery and good-natured man, and one who enjoyed the confidence of his fellow men."

At one time he was an office bearer at the York Presbyterian Church of which he was also a trustee. Mrs. Pollock died in December last, since which time Major Pollock had not enjoyed the best of health.

The funeral service was held at the York Presbyterian Church, when Mr. James Dallas, M.R.C.V.S., a colleague and friend of very long standing, was among the chief mourners and Mr. J. W. Procter, M.R.C.V.S., was also present

together with Mr. Robinson (representing Mr. J. S. S. Woodrow, M.R.C.V.S.). Mr. E. F. Angler, M.R.C.V.S., and the Yorkshire Division, N.V.M.A., sent floral tributes. The interment took place at the Cathcart Cemetery, Glasgow.

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GENERAL OBITUARY

At Forfar Infirmary on April 29th after a long illness, Elizabeth Douglas Barton, wife of T. M. Inglis, M.R.C.V.S., Ingleside, Forfar.

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ROYAL VETERINARY COLLEGE SUPPLEMENTAL CHARTER

Notice is given in the *London Gazette* that a petition has been presented to His Majesty in Council, by the Royal Veterinary College, praying for the grant of a Supplemental Charter under the title of "The Royal Veterinary College and Hospital."

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LEGAL NOTES

The Cloughton Anthrax Case

Inasmuch as the above case, which was briefly reported in our issue of April 18th, is the subject of a contribution to our correspondence columns, and in view of the important features it presents, we print below an extended report of the proceedings.

There was a sequel to the recent outbreak of anthrax at Cloughton, in the North Riding Police Court, when proceedings were taken against three defendants under the Anthrax Order.

Edgar H. Leadlay, a Cloughton farmer, was summoned on charges of failing to report anthrax and failing to detain a diseased carcase; Thomas Sedman, Burniston, was summoned on charges of removing a diseased carcase and cutting a diseased carcase, and there were two summonses against the M.F.H. of the Staintondale Hunt, Colonel Brooke Joynson, for removing a diseased carcase and failing to prevent the access to it of other animals.

Mr. J. B. M. Peters, assistant clerk to the County Council, prosecuted, and Mr. F. S. H. Ward and Mr. J. C. Whitfield defended.

In the allegations against Leadlay, Mr. Peters said that defendant called in Mr. H. W. Good (veterinary surgeon) on March 6th with regard to the sudden deaths of two heifers and from the circumstances at once suspected anthrax. At the premises he saw offals removed from a heifer which had been slaughtered previously, and a sow in the yard. He diagnosed anthrax and at once informed Inspector Wilson. The disease was confirmed by the Ministry. Inspector Wilson went out the same day as Mr. Good, May 6th, and defendant told him that the previous Sunday a white heifer had died in the fold yard, that he had stuck it and it had not bled very well, and that he had sent for Thomas Sedman, a butcher, who skinned and dressed it in the fold yard and put the intestines in a barrel, the skin being taken away by Sedman. He also told the Inspector that on March 4th the dressed carcase was taken to the Staintondale Hounds' kennels.

Continuing, Mr. Peters said that the onus was on defendant to show that he had no knowledge of the disease and could not with reasonable diligence have obtained that knowledge. The disease was characterised by sudden onset, and in cattle was usually fatal in a few hours. That symptom alone, he suggested, was sufficient to put any owner on his guard and cause suspicion of the disease. On March 1st, the Sunday previous to the diagnosis by Mr. Good, the first animal was healthy at 9 a.m., and was dying at 11.30.

He wished, he said, to emphasise the serious nature of the disease, which was a danger not only to animals but to human beings. The prosecution brought the case forward as a very serious one.

Mr. H. W. Good, after describing his visit to the premises, said anthrax could be lingering: many cattle recovered.

Cross-examined by Mr. Ward, witness said anthrax for a great many years had been very rare in the district, and it was most unlikely that a farmer of defendant's age would have seen a case before. As a veterinary surgeon, he would not like to diagnose anthrax during the life of the animal.

The same symptoms could arise from various other causes. Witness came into the case as a private practitioner, called in by the farmer who, he considered, could not do anything more diligent.

Mr. E. Hardwicke, chief veterinary inspector of the N.R.C.C., who had visited the premises after the Ministry's confirmation of the outbreak, said that anthrax was fairly common now: there had been nine outbreaks in the North Riding in the quarter. Sudden death usually put the farmer on his guard, and the service was entirely free after he reported to the police.

Mr. Ward suggested that the nine outbreaks had not been broadcast, and that that case would be the first useful publicity they would have had to warn farmers. Even the Farmers' Union had had no notice of the outbreaks.

The witness said there had been a recent outbreak at Scalby.

Mr. Ward stated that the defence was that defendant, a reasonably diligent, honest man, was completely innocent in the particular circumstances and acted as, he suggested, their worships would have done. He had never heard of, or seen, a case of anthrax in the district. The case at Scalby was kept quiet. Defendant had had the roof of the shed cresoted by his landlord and the creosote had got down into the water and he thought that the most likely cause was that the animals had got creosote poisoning. When the second one died he straight away called in a veterinary surgeon, and after anthrax was suspected he was assistance itself.

Defendant said he had never seen anthrax and the butcher he called in had not. They never received cash for carcases sent for hounds; they gave them as "good will." The cremation and other steps had cost him £57 17s. 6d., but it was explained that this was recoverable.

The Chairman announced that the magistrates considered that a technical offence had been committed and that they would impose a fine of £1 in each case. They hoped that the case would be given publicity for the benefit of farmers all over the district, so that they could think it over. If ever they had a diseased animal they should call in a police constable.

The magistrates refused the prosecution's application for costs.

Thomas Sedman, who pleaded not guilty to the two charges against him, told the court he was a butcher of 50 years' experience. He had never come across a case of anthrax and had never heard of a case in that district. Defendant said Mr. Leadlay believed the beast had died of creosote poisoning and he took that as correct, the thought of anthrax never entering his mind.

Defendant was fined £1 in each case, no order being made regarding the costs.

In his summing up of the case, Mr. J. C. Whitfield referred to the case of anthrax at

Scalby sometime previous. "It is a great pity no publicity was given to this other case at Scalby," he said. "If information had been spread abroad, these offences would never have been committed."

The cases against Colonel Brooke Joynson were dismissed. Defendant said he had no idea the carcase was diseased. The beast, he said, had been cut up by a professional butcher and he considered that sufficient.

Mr. Whitfield, representing defendant, pointed out that there had been nine cases of anthrax in the North Riding, one in that very district, and no information regarding them had been supplied to Mr. Joynson.

In dismissing the case, the Chairman said he hoped the Press would give wide publicity to these three cases. Anthrax was a very serious and contagious disease, to human beings as well as to animals.

Refusal of Entry of Veterinary Officer.—A Midlothian pig-feeder who was found guilty of refusing to allow a veterinary surgeon to enter his premises to examine cattle was fined £3 at a sitting of the Midlothian J.P. Court in the County Buildings, Edinburgh. The case was the first of its kind in Midlothian.

The accused, George Pendreigh, pleaded not guilty to a charge of refusing without lawful authority or excuse to allow Mr. E. M. Mackay, a veterinary surgeon in the employment of the Midlothian County Council, and acting under the execution of the Tuberculosis Order of 1925, to enter the byre at No. 6 Holding, Ingliston, Newbridge, on March 18th, contrary to the Diseases of Animals Act, of 1894.

The veterinary surgeon, giving evidence for the prosecution, stated that he was employed as a veterinary inspector by the County Council and had called at the premises in question to carry out his duties of inspection. He was met by Pendreigh, who asked him if he had examined any other cattle that day. Witness replied that he had, but there was no fear of infection as there had been no traces of disease. Accused refused to allow him to enter, and after attempting to reason with him, witness called in the police.

The case for the defence was that accused had a lawful excuse for refusing admission. He said that he was a pig-feeder and had about 200 pigs on the premises and only two cows and a calf. He had asked the inspector whether he had been in contact with any other stock that day, and on hearing that he had, he refused to allow him to enter. He maintained that the inspector should have disinfected his feet and hands before inspecting the stock.

His reason for being so particular was that he had lost £400 through swine fever some years ago. He added that he had allowed the constable admission on learning that he had not been in contact with any other stock.

The justices found the charge proved and imposed a fine of £3.

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£15,000 DAMAGES FOR MOTOR ACCIDENT INJURY

Mr. James K. Bateman, M.R.C.V.S., B.Sc., 38, of The Hook, Potters Bar, Middlesex, was awarded £15,668 damages at Manchester Assizes on Monday, against Major Frank Hopkin, O.B.E., M.R.C.V.S., of Manchester Road, Knutsford, in a claim arising out of a motor accident. The action was one for personal damages. Liability was admitted, and the only issue was that of damages.

It was stated that Mr. Bateman, who occupied the position of Veterinary Superintendent of the Greyhound Racing Association's establishment at Northaw, Herts., had a salary of £1,000 a year. At the time of the accident he was a passenger in a car driven by Mr. Hopkin, which struck a trailer. He received serious injuries, including a severe fracture of the right side of the skull and laceration of the brain. It was stated that he would not be able to resume his ordinary work.

In medical evidence it was said that the case was of that kind where the chances of epilepsy were very grave. In a case of that gravity about 30 per cent. generally developed epilepsy.

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H.M. STATIONERY OFFICE PUBLICATIONS

The undermentioned have been published recently. Copies can be purchased through any bookseller, or indirectly from H.M. Stationery Office, at the following addresses: London: Adastral House, Kingsway, W.C.2, and 28, Abingdon Street, S.W.1; Cardiff: 1, St. Andrew's Crescent; Manchester: York Street; Edinburgh: 120, George Street.

	Price Net. s.	d.	*Post Free.* s.	d.
Statutory Rules and Orders, 1936: 310/S.10. Animal, Scotland. Licensing of Bulls. The improvement of Livestock (Licensing of Bulls) (Scotland) Regulations, dated April 2nd, 1936.	0	3	0	3½
356. Milk and Dairies, England. The Milk (Special Designations) Order, dated April 18th, 1936.		4		5
Agriculture and Fisheries, Ministry of:— Agricultural Research Institutes. Reports on the Work of, and on certain other agricultural investigations in the United Kingdom, 1933-34. (24-130-0-34).	5	0	5	5
Health, Ministry of:— Circular 1533. Milk (Special Designations) Order, 1936. To County Councils and Sanitary Authorities (England and Wales) April 24th, 1936. (33-9999)		2		2½
Circular 1534. Public Health (Imported Food) Regulations, 1925, and Public Health (Imported Food) Amendment Regulations, 1933. To Port Sanitary Authorities and certain Sanitary Authorities (England and Wales). April 24th, 1936. (33-9999)		1		1½

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ZOOLOGICAL SOCIETY OF LONDON

The report of the Zoological Society of London for 1935, which was presented to the annual general meeting on April 29th, shows that the Zoo has passed through one of the most successful years of its history. A total of 1,963,136 visitors were admitted during the year, being the highest number since 1930 and the sixth highest since the society was founded.

The assets of the society have increased by more than £14,000 and its income by nearly £19,000 over the figures for 1934. Although the visitors to Whipsnade were nearly 45,000 fewer

than in the previous year, there were over 38,000 more than in 1933.

In view of this flourishing condition expenditure on several structural additions to the Zoo has been sanctioned. Work has begun on a studio of animal art, part of the cost of which will be met by grants from the London County Council and the Middlesex County Council. A strip of Regent's Park adjoining the gardens has been granted to the society by the First Commissioner of Works, and this is to be utilised for the creation of a special children's Zoo. It is hoped that both these new features will be ready during the early summer. A modernisation of the middle part of the gardens, including a new Elephant and Rhinoceros House, is also contemplated, and it is intended that this shall be completed in 1937.

That the health of the animals has been well maintained is shown by the fact that the death-rate among mammals is the lowest recorded during the last ten years. There has been an unusually large number of notable exhibits during the year. The most interesting was the okapi, presented by the King of the Belgians to the (then) Prince of Wales and given by him to the society. Other outstanding additions to the menagerie were West Indian manatees, Komodo dragons, and blood-sucking vampire bats.

In scientific research the work of Dr. H. Honigman on the principles underlying the feeding of animals in the gardens and of Dr. S. Zuckerman on social behaviour in apes is stated to be of great interest.

A new and more readable edition of the garden guide has been issued. Its form and illustrations are greatly improved, and articles in it by Dr. Julian Huxley, secretary of the society, on animal classification and animal adaptations give it an educational value apart from its use as a handbook to the Zoo.

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MIGRATION OF BIRDS EXHIBIT

An exhibit illustrating the migration of birds has been added to the Bird Gallery in the Natural History Museum, South Kensington. It consists of specimens of birds whose movements exemplify the various types of migration, each bird being accompanied by an explanatory label and by a map on which its breeding and non-breeding haunts are marked.

"The migrations illustrated are of various types," says *The Times*. "As an example of movement in altitude there has been chosen the white-capped redstart, of the Eastern Himalayas, which breeds at a height of from 8,000 feet to 12,000 feet, and winters in the foothills. Various examples of migration by movement in latitude are shown. There are the comparatively short migrations of birds which merely go towards the equator in winter, such birds as the fieldfare in the Northern Hemisphere and the long-tailed cuckoo in the Southern. There are also the longer migrations of birds which move from one hemisphere to the other. These include the swallow and Arctic tern, which have their breeding areas in the north and winter in the south, and the great shearwater, of which the reverse is true. The last-named bird breeds in Tristan da Cunha and passes its non-breeding season in the North Atlantic, reaching Iceland and Greenland. Probably the longest migration of any bird is that of the Arctic tern, which breeds in the Arctic regions and then migrates to the Antarctic.

"Information about bird migration is obtained through general observation and by marking birds in ways which are illustrated in this exhibit. Marking of birds by means of light rings placed round the leg was first tried, with woodcock, in 1890 by Lord William Percy. In 1909 a scheme of systematic ringing was inaugurated by Mr. H. F. Witherby. Among the birds now on view in the museum is a black-headed gull, which was ringed as a nestling in the South Baltic on July 8th 1934, and found on February 8th of this year at Kempton Park Reservoirs."

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We are prompted to draw the attention of our readers to the "Easibind" binder that is advertised in this issue, for the reason that it appears to us to possess features which render it much superior to any "temporary" binder that we have seen.

We feel confident that those of our readers who take advantage of the "seven days' approval" offer will elect to retain a cover that will, despite its simplicity, enable them to file their journals in an orderly and efficient fashion at little expense.

Correspondence

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

All correspondence must bear the name and address of the contributor for publication.

The Editor does not hold himself responsible for the opinions of his correspondents.

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ANTHRAX

To the Editor of the Veterinary Record

Sir,—I was interested in Mr. W. M. McKay's letter and the short account of a prosecution heard at Scarborough, in your issue of April 18th. Having dealt with the cases at Scarborough, first as a practitioner, and then as an inspector under the Diseases of Animals Act, and subsequently as a witness for the prosecution, like Mr. McKay, I think further details are necessary to explain the matter to your readers, and, at the same time, perhaps, do something to enlighten the profession as to the great fallacy that exists regarding anthrax as it usually occurs in these islands.*

Probably, to some extent, the mistaken ideas about anthrax are due to the fact that the chapters in most of our text-books have been written by authors whose chief experience of the disease has been in tropical countries. In the temperate climate of these islands it is open to doubt if the bacillus ever propagates outside the animal body, remaining dormant in spore form, during which time it loses a good deal of its virulence.

In the recent Scarborough case two cattle were slaughtered and dressed, and I was therefore fortunate in being able to note the state of affairs internally. I had a similar experience a few years ago, also in connection with two cattle, and in each case (with one exception) the spleen was only very slightly enlarged, and the amount of gastro-enteritis only moderate. Certainly, the spleens contained the characteristic dark fluid, but the lesions which text-books lead one to expect were conspicuous by their absence. There are various other bacterial diseases, with which every practitioner is familiar, in which the lesions of septicaemia are more pronounced than they were in the cases of anthrax I have encountered.

*Our correspondent encloses a more extended report of these proceedings, which, in view of the interest of the subject, we reproduce in our "Legal Notes" this week.—*Editor.*

It will therefore be seen that at my first *post-mortems* I was equally in doubt with Mr. McKay as to the condition in which one should expect to find the blood, and it is not surprising to read of anthrax carcases being dressed, passed as fit for human consumption and eaten; indeed, in one of the Scarborough cases, were it not for my intervention, this actually would have happened.

I note that in the cases recorded by Mr. McKay, death was not sudden, which is also precisely my experience; consequently, I was unable to support the prosecution in the recent Scarborough case as far as sudden death was concerned, although the prosecution contended, and no doubt in good faith, that one of the cattle had an acute illness lasting only a couple of hours. The information was obtained from the defendant in the case, who dated the illness from the appearance of acute symptoms, but omitted to state that the beast was dull, off its food, and spent most of the previous day lying down.

In this case it is of interest, further, to record that four days after the slaughter and evisceration in the fold yard, two of the contacts had high temperatures, were dull, had diarrhoea with colicy pains and hurried respirations, but nevertheless recovered. All the contacts had been given 50 c.c.s of anthrax serum; whether this had anything to do with their recovery or not remains unknown.

One is forced to the conclusion that it is usually a mistake to look for anthrax as an acute condition in this country, and for this reason a great many cases probably go unrecognised even by veterinary surgeons. In these circumstances and with the increased manufacture of artificial bone manure, it is not surprising that this disease appears to be becoming more common.

We must, in this country, have some members of the profession who practise where anthrax is very common and who have a good practical knowledge of the disease; therefore, whilst it is now too late to suggest to the Provisional Committee for this year's Congress the inclusion of a really practical paper on anthrax, it might with advantage be noted for the Congress of 1937.

Yours faithfully,
H. W. Good.

Kilpatrick Lodge,
Scalby,
Near Scarborough.
April 23rd, 1936.

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THE FUTURE OF PRIVATE PRACTICE; CHESHIRE FARMERS AND COUNTY COUNCIL SCHEME

To the Editor of The Veterinary Record

Sir,—A report is published in the *Veterinary Record* under the above heading which states that Cheshire County Executive of the National Farmers' Union, at Chester, recently discussed the position arising from what the members consider to be a dearth of private veterinary surgeons in the county. This, it is said, has come about following the appointment by the County Council of a staff of full-time veterinary officers.

Now this statement is inaccurate, as it implies that the members of the Cheshire N.F.U. as a whole held this opinion, when, in fact, the overwhelming majority of farmers at this meeting expressed very sincere appreciation of the work of the whole-time veterinary staff in Cheshire and did not anticipate any dearth of veterinary practitioners in the county.

Normally, I should not have thought it necessary to criticise the report of this meeting, but Mr. Steele Bodger has seized the opportunity of writing at length in the lay Press an article which gives a completely wrong impression of what actually transpired at the N.F.U. meeting at Chester, goes on to deplore the formation of a whole-time veterinary service in Cheshire and comments on remarks I made when addressing the meeting.

Although I do not question Mr. Steele Bodger's right to his own opinion on the subject of County Veterinary Administration, even if I do find his remarks on the question more remarkable for their volume than their quality, I do emphatically resent his misleading article in the lay Press, principally because in virtue of my position I am debarred from answering it through a similar medium, and also because I think such publications do the profession definite and lasting harm. Mr. Steele Bodger's article could only have one purpose, that of an attack on a well-established whole-time veterinary service, and, although it will not cause that body the slightest anxiety, it may have a harmful effect on practitioners in Cheshire.

Mr. Steele Bodger must have been aware that during the last few months the question of whether private practitioners should retain the tuberculin testing of cattle has been the concern of county councillors, and does he imagine that he has furthered the cause of his brother practitioners by his ill-timed communication to the Press?

Yours faithfully,
A. B. Kerr,
Chief Veterinary Officer.

Cheshire County Council,
Public Health Department,
24, Nicholas Street,
Chester.
April 27th, 1936.

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VETERINARY CONTROVERSY

To the Editor of the Veterinary Record

Sir,—I like Mr. Henry Gray's reference to "a sportsman-like manner" in conducting discussion and argument. There are not a few men who cannot stand getting a Roland for their Oliver and who rush off at a tangent and "erect their fluff," when challenged and perchance beaten in argument.

There is a tendency to-day to talk and write about peudo-science, but I do not think it does more harm to the practitioner than ultra-science, and a lack of the most valuable asset of all, namely, art.

Yours sincerely,
G. Mayall, m.r.c.v.s.

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"CULTIVATION OF THE UNFIT"

Sir,—In your issue of January 25th, p. 88, appears an extract from *Nature* (January 11th), containing a statement that wolves were introduced into New Zealand to weed out unfit and deformed deer. It is a fact that in some parts of the Dominion deer have become a serious nuisance, but wolves have never been imported to deal with this problem, nor is there any likelihood of recourse to this drastic procedure. There are no wolves in New Zealand.

Yours faithfully,
H. A. Reid.

Tawera,
Masterton, N.Z.
March 19th, 1936.